NEW VANGUARD 242

SOVIET COLD WAR GUIDED MISSILE CRUISERS

EDWARD HAMPSHIRE ILLUSTRATED BY PAUL WRIGHT

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INTRODUCTION

Soviet naval strategy and missile cruisers

The Soviet Union, like Russia before it, was primarily a land power, but one which turned to the sea and sea power in certain periods to achieve its strategic and foreign policy objectives. The Cold War was one of those periods. Since the age of Napoleon, Russia and the Soviet Union had been invaded three times over land from the west. Land warfare therefore remained an understandable preoccupation – so much so that Soviet naval strategy and operational concepts were strongly influenced by land-based approaches and attitudes. However, at various periods from 1945 to 1991 the Soviet leadership invested considerable resources in building up their fleet, which by the late 1970s had become truly an ocean-going fighting force.

Stalin had a traditional view of the role of the navy, and as World War II ended and was replaced by an increasingly tense 'cold war', he approved a programme to re-build the fleet. This programme was one in which large battlecruisers were the centrepiece – not aircraft carriers, as the experience of World War II might have suggested. Stalin was fearful that Western navies – primarily the US Navy and the British Royal Navy – would use control of the seas to approach and attack the Soviet Union. A powerful navy supported by land-based airpower would interdict such forces before they could launch their attacks. The Sverdlov-class (Project 68bis) cruisers were part of this conventional build-up of naval forces.

The Project 68bis (Sverdlov-class) cruiser *Molotovsk* in the 1950s. Armed with 12 152mm guns in triple mountings and 12 100mm guns in twin mountings, the ships of this class were the Soviet Navy's last conventional cruisers. (Curt S Ohlsson: Public domain)

On Stalin's death there was a two-year struggle by his successors for power. The navy's commander-in-chief, Admiral Kuznetsov, began a programme during this two-year period to convert half-completed Sverdlov cruisers and Project 82 battlecruisers into guided missile cruisers, launching land attack cruise missiles. The faction with which Kuznetsov was associated lost the Kremlin power struggle, and the admiral's newly adapted programme was stopped in its tracks. The only outcomes were the missile trials ships of the Project 70E and 67EP types. Kuznetsov was replaced by Admiral Gorshkov and a range of missile cruiser designs were cancelled. Nikita Khrushchev, the new general secretary, was sceptical of the need for a large ocean-going fleet and was only reluctantly persuaded to build four small missile cruisers of the Groznyy class (Project 58), partly to make use of the missiles and equipment already constructed for the now-cancelled large missile cruisers. In 1959 Khrushchev seemed to pull the rug from under even these ships by barring the navy from the strategic land strike role following the creation of a new armed service, the Rocket Forces, which would now have primacy in this area. Soviet naval scientists rescued the situation by re-designing these missiles as anti-ship weapons, designed to destroy NATO carrier forces before they could launch nuclear-armed bombers at the Soviet Union.

The Project 58 ship *Groznyy*, the first ship of a class of four cruisers completed in the 1960s. These four vessels marked the start of a remarkable building programme of guided missile cruisers that would eventually culminate in the enormous battlecruisers of the Kirov class. (USN: US federal government, public domain)

This approach then informed the development of a new strategy based on the anti-carrier role, in which two new classes of missile cruiser (Projects 934 and 934A) would have formed 'brigades' of ships more capable of independent action and co-ordinated attack than the relatively simple Project 58s. This strategy was thrown into confusion by the coming into service of large numbers of Polaris missile-launching nuclear submarines in the US Navy in the early 1960s. Now the main focus was attacking this growing fleet of NATO submarines. The first four Project 934 ships were too far advanced to change their design, although they were re-designated 'Large Anti-Submarine Ships' and re-numbered Project 1134. The remaining three Project 934s and the seven planned Project 934As were partially re-designed, with their anti-ship cruise missiles replaced by anti-submarine torpedo-carrying missiles. They were re-numbered Project 1134A and also re-designated Large Anti-Submarine Ships. The next seven missile cruisers seem to have been re-designed as anti-submarine ships from a much earlier stage as the Project 1134B (Kara class), focusing on the anti-submarine role in the Black Sea and Mediterranean.

Just as the rise of Khrushchev resulted in major strategic change, so did his fall from power in 1964. Admiral Gorshkov seized his chance to create a new role for the navy, by providing a nuclear second strike capability against the United States to counter the US Navy's Polaris fleet. Soviet nuclear-missile-armed submarines would patrol the mid-Atlantic or mid-Pacific ready to attack the US. The surface fleet would be engaged in defending these mid-ocean submarines in the new 'pro-submarine' role. Cruisers were now needed to destroy enemy hunter-killer submarines, surface anti-submarine forces, and anti-submarine carrier-based aircraft. Failures in co-ordinating large numbers of warships across the wide expanses of the open ocean during Exercise

Okean 70 demonstrated the need for an afloat command capability for such complex blue-water operations, and the huge Kirov-class (Project 1144) cruisers were the eventual outcome. The Slava-class (Project 1164) cruisers were a return to the anti-ship strike capability of the Project 58 and 1134 vessels.

The Sverdlov-class cruiser *Zhdanov* was converted into an interim command cruiser following the *Okean* exercise of 1970 to fill the gap before the Kirov class came into service. Her 'X' (penultimate) 152mm mounting was removed to provide space for command facilities. (USN: US federal government, public domain)

As Soviet nuclear ballistic missiles began to develop sufficient range to strike the US from close to Soviet waters, the pro-submarine strategy in the 1970s and 1980s increasingly focused on nuclear-missile-firing 'bastions' near to Soviet home waters where such submarines would patrol and from where they would be defended. Despite this, Soviet cruisers and other warships were increasingly deployed at a great distance from the Soviet Union as a support to Communist and Communist-friendly regimes worldwide and to deter US or Western intervention in conflicts in Africa and the Middle East.

In the 1980s it became clear that the Soviet Union had dropped far behind the West economically, and most humiliatingly of all the USSR became dependent on American grain to help feed its population. When finally a general secretary – Mikhail Gorbachev – emerged who was able to push through reforms, the resulting *glasnost* and *perestroika* ('openness' and 'rebuilding' respectively) did not re-vivify the system: they in fact began to undermine it. For the Soviet Navy, Gorbachev's determination to reduce tensions with the West meant that Soviet cruisers disappeared from the world's oceans and, aside from goodwill visits, began to operate largely in the more enclosed waters of the Baltic, Black Sea and Northern Sea only. Funds for the navy were gradually reduced, which manifested itself in longer construction and refit times for warships, and a reduction in readiness and capability. In December 1991 the Soviet Union was

formally dissolved. Much of the Soviet Navy transferred to Russian control, including most of its warships, dockyards and design bureaus. Starved of funds as the Russian economy collapsed, the navy struggled to maintain the effectiveness of even part of the surface fleet, let alone re-establish a production line of new warships. Partial recovery has occurred under President Putin, though at the time of publication only a small number of the once-impressive Cold War cruiser fleet were in service. However, replacements are planned, and work has commenced on refitting a Kirov-class battlecruiser and getting her to sea again, 14 years after being laid up.

This book first looks at naval weapons and sensors, then covers the design, construction and modification of each of the guided-missile cruiser classes in turn, and then reviews their service life until and following the collapse of the Soviet Union. The cruiser classes were known by different names or numbers by the Soviets and by NATO respectively. These are set out in the table below:

First ship of class	Project number	Soviet name	NATO code name
Groznyy	58	–	Kynda
Admiral Zozulya	1134	Berkut	Kresta I
Kronstadt	1134A	Berkut A	Kresta II
Nikolaev	1134B	Berkut B	Kara
Kirov	1144	Orlan	Baltcom1
Slava	1164	Atlant	Krasina/Blackcom

WEAPON SYSTEMS AND SENSORS

Command systems

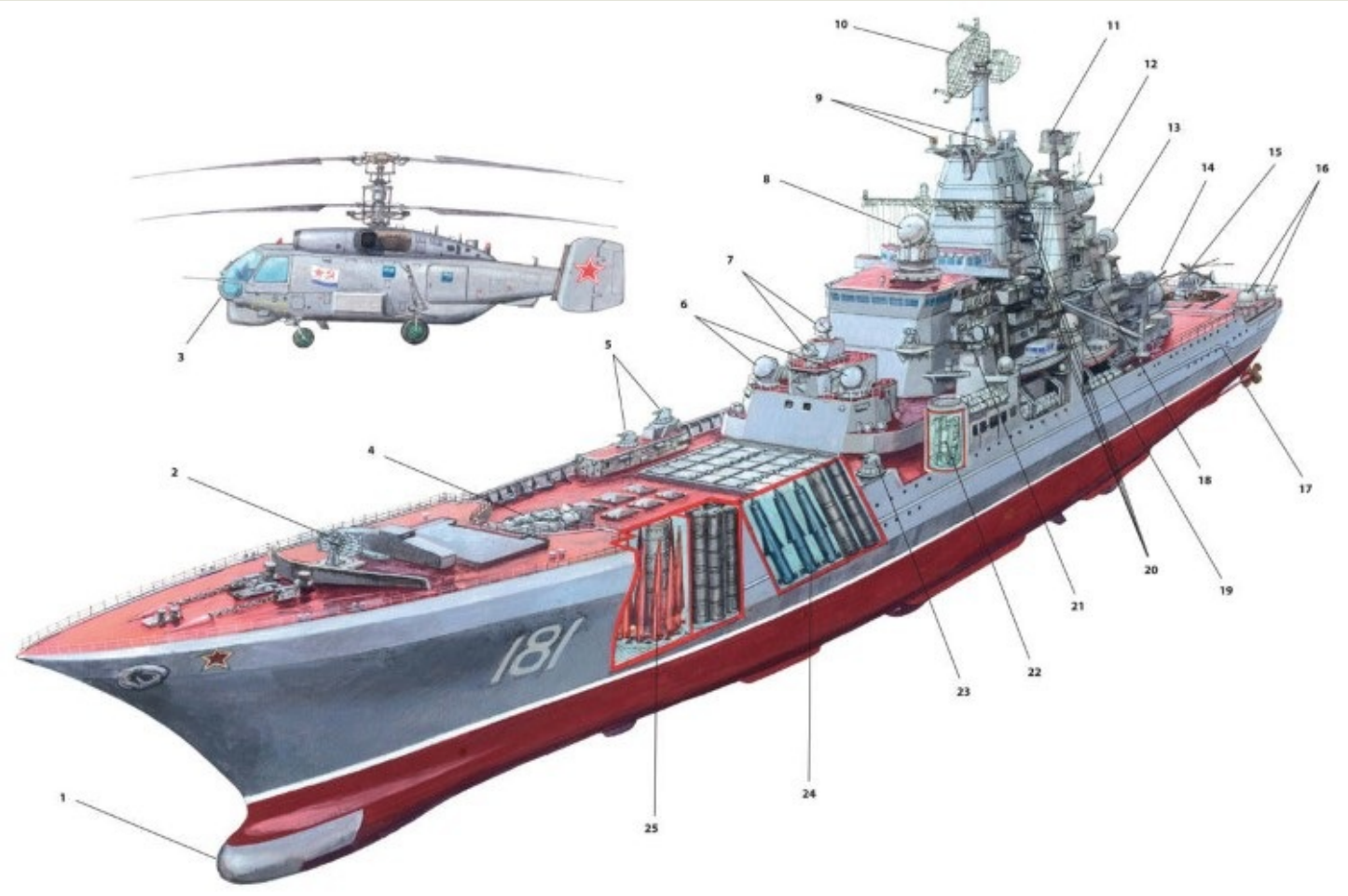
Compared to Western warships, early Soviet computer command and control systems assumed that operational and many tactical decisions would be made ashore, giving individual commanders comparatively little autonomy in fighting their vessels. Only the fleet commander, based ashore, would have access to a picture that combined information from satellites, reconnaissance aircraft and warships. In effect this meant that the earliest missile cruisers were not much more than mobile missile batteries. Tactical information from different weapon systems and sensors would have to be manually entered onto a plotting table in the ship's 'battle information post' (operations room). From the Project 1134A cruisers onwards ships were fitted with the 'Second Captain' computer system, which improved the tactical information flow for ships' captains. However, instead of displaying the tactical picture on a combined plot as in equivalent Western warships, the Second Captain produced typed printouts of approved options for actions, and commands from ashore. As mentioned above, the failure of the 1970 *Okean* exercise resulted in a decision being made to take the fleet command capability to sea in the Project 1144 Kirov-class large cruisers. Even with this development, however, only the Project 1144 vessels would be able to construct a full tactical picture, with other ships in the fleet generally waiting for tactical commands from the flagship and unable to share tactical data amongst themselves. More capable Second Captain systems in the Project 1134B and 1164 ships appear to have given these ships a better ability to form a tactical picture, lessen dependence on the flagship and direct smaller vessels under their co-ordination.

This image of a P35 missile at a museum in Sevastopol gives an indication of its enormous size: over 10 metres long. To the right is the Volnya air defence missile. (Sas1975kr: Creative commons attribution – share alike 3.0 unported)

Data-links allowing communication between Second Captains and Fleet commanders, and between warships, aircraft and satellites are summarized below.

Data-link (NATO code name)	Details	Fitted on
Bell Crown	Antenna for Second Captain links	Projects 1134A, 1134B, 1144, 1164
Bell Hop	Antenna for links between ships and 'Bear D' reconnaissance aircraft	Projects 58, 1134, 1134A, 1134B, 1144, 1164
Bell Spike	Possibly antenna for land-based fighter control	Projects 1144, 1164
Fig Jar	Data-link for command-firing RBU6000 rocket launchers	Projects 58, 1134, 1134A, 1134B
Punch Bowl	Satellite data-link for Bazalt and Granit anti-ship missile systems	Projects 1144, 1164
Plinth Net	Missile video receiver for P35	Projects 58, 1134

A KIROV CLASS



KEY

1. Polinom bow sonar
2. RBU-6000 anti-submarine rocket launcher
3. Ka-27 helicopter
4. Metel anti-submarine torpedo-carrying missile launcher
5. Forward starboard AK-630 air defence guns
6. Vympel fire control radar for AK-630 guns
7. Sprut guidance radar for Metel missiles
8. Forward Volna guidance radar for Fort missiles
9. MP-404 intercept antennae
10. Flag air search radar
11. Fregat search radar
12. Aft Volna guidance radar for Fort missiles
13. Lev fire control radar for AK-100 guns
14. Two single AK-100 guns
15. Ka-27 helicopter
16. Aft port AK-630 air defence guns
17. 530mm torpedo tubes (behind protective hatches)
18. Vympel fire control radar for AK-630 guns
19. 'Punch Bowl' satellite data-link

20. Gorzuf jammers
21. 4P33 guidance radar for Osa-M missiles
22. Osa-M missile launcher (retracted)
23. Forward port AK-630 air defence gun
24. Granit cruise missiles
25. Fort air defence missiles

This cutaway illustration shows *Kirov*, the first Project 1144 ship. The immense size of the vessel is apparent, as are the large numbers of weapons and sensors. The cutaway sections show the vertical silos for the Fort air defence missile system and the 30-degree angle silos for the Granit long-range anti-ship cruise missiles. Right forward can be seen a single RBU-6000 anti-submarine rocket launcher. Recessed behind the forecastle is the twin trainable Metel anti-submarine torpedo delivery system, and aft of that are the forward Fort and the Granit hatches. On port and starboard deckhouses either side of the Granit silos are paired AK-630 anti-missile guns. Just forward of and below the bridge are the twin armed 'pop-up' launchers for Osa-M short-range air defence missiles. Port and starboard of the main aft deckhouse are RBU-1000 anti-submarine rocket launchers, with hatches in the hull below sheltering 533mm torpedo tubes. Aft are the two single AK-100 dual purpose guns and then the lift onto the flight deck for the ship's helicopters. Either side of the lift are deckhouses for further paired AK-630 guns. For the next of the class, *Frunze*, the Metel launcher would be replaced by space reserved for Kinzhal short-range air defence missile launchers and the two single AK-100s would be replaced by a single mounting twin gun AK-130, whilst the aft AK-630s would be moved forward and their former position taken by space reserved for more Kinzhal launchers. *Kalinin* and *Pyotr Velikiy* were armed with the Kortik anti-missile system in place of AK-630s, and the latter was finally fitted with an operational Kinzhal system. The sensor fit is substantial, but in particular note the MR-800 air search radar atop the foremast and the Punch Bowl satellite communication antenna under radar-domes below and either side of the foremast.

Surface-to-surface missile systems

The Soviet missile cruiser was developed primarily as a means to deliver large long-range cruise missiles: initially at strategic targets on land, but later to destroy NATO carrier battle groups that might approach the Soviet Union and launch nuclear attacks. The long-range cruise missiles were developed from technology acquired from the German V1 and V2 missile programmes of late World War II. The first surface-to-surface missile system to enter full naval service was the P5: the Project 82R battlecruisers would have been fitted with these missiles. Despite a long range and a terminal speed of Mach 1.2, their guidance was crude: target co-ordinates were entered onto the missile by the ship's crew before it was launched, and the missile had an accuracy of no more than plus or minus two nautical miles (3.7km). Its ability to intercept a moving warship was therefore zero, but its role at this time was instead to attack land targets with nuclear weapons, so this lack of accuracy was not considered important.

A Volnya missile in flight. The original system was fitted to Project 58 ships. An updated army system was then navalized for the Project 1134 vessels with greater range and speed; the system was further updated in the 1970s. (PH2 D Beech: US federal government, public domain)

When surface ships were barred from the nuclear attack role by Khrushchev, the P5 was

adapted to the anti-ship role by developing the ability to send course updates to the missile whilst in flight, either from passive intercept data from the launching ship, or from land-based reconnaissance aircraft, and eventually from ship-based helicopters. The surface-launched version of this new missile was designated the P35 and was fitted to the Project 58 and 1134 ships. The P35 system was modernized in the 1970s, with electronics replacing hydraulic equipment, entering service in 1982.

Strela was fitted to the single Project 67EP ship – an experimental conversion of a Project 68bis cruiser, but this proved not to be successful. Another missile system in development, the P40, had similar range and capability to the P35 and seems to have been even quicker. It would have been fitted to the abortive Project 63 cruiser, but never entered service.

In the mid-1950s work began on the successor to the P35. It would have a ramjet engine, enabling it to reach speeds much faster than that of its predecessor. The increased speed would not only make enemy counter-measures more difficult, but would hopefully increase the chances of a hit. This system, known as Bazalt, was substantially delayed. It had been hoped to fit the system to Project 934 missile cruisers, but it eventually entered cruiser service on the Project 1164 vessels. A medium-range anti-ship missile was also developed in parallel to the Bazalt. This was Malachit, which would have been fitted to Project 934A cruisers as a secondary system to finish off enemy formations after an attack by Bazalts. In the event, the Project 934As were re-designated Project 1134A and armed with the Metel anti-submarine system instead.

As problems persisted with Bazalt, development began on a new system, returning to P35 principles and powered by a turbojet. When the Granit was accepted into service in 1983, it had largely superseded the Bazalt and could be launched from vertical launch tubes rather than trainable launchers. Granit was fitted to the Project 1144 large cruisers.

System/missile/ launcher	Name	NATO code number and name	Range/speed	Dimensions (length/ diameter/wingspan)	Fitted on
S2/4K87/SM58	Strela	SSC-2 Salish	100km 510kts	7.9m/1.15m/4.9m	Project 67EP
P5 or P35/4K44/ SM70	–	SSN-3/ SSN-3B Shaddock	300km Mach 1.2/ Mach 1.4	10.2m/0.97m/3.7m	Planned for Project 82R, fitted on Projects 58, 1134
P120/4K85/-	Malachit	SSN-9 Siren	110km Mach 0.9	8.8m/0.5m/-	Originally planned for Project 934A
P500/4K80/SM241	Bazalt	SSN-12 Sandbox	550km Mach 1.7	11.7m/0.88m/2.1m	Project 1164, originally planned for Project 934
P700/3K45/SM233	Granit	SSN-19 Shipwreck	445km Mach 1.6	10m/0.85m/-	Project 1144

Medium- and long-range surface-to-air missiles

Soviet medium-range air defence missile systems were not initially ‘area defence systems’ (i.e. systems that could defend other ships and engage crossing targets). Like the US/NATO Sea Sparrow, they were most effective at engaging targets heading towards the launching ship. Volnya, approved for development in August 1956, was derived from the army’s S125 system and fitted to Project 58 ships. An improved version was fitted to the Project 1134 ships. Volkhov-M never

reached beyond the trial stage, however: its liquid fuel had to be loaded before use, which significantly lengthened its reaction time in comparison to other systems. Shtorm was designed for maritime operations from the start and was accepted into service in 1969 and fitted on the Project 1134A and 1134B ships. Fort, adapted from the army's S300 missile system, was the Soviet Navy's first effective area-defence missile system. The Project 1134B ship *Azov* was modified as the trials ship. This capable system was accepted into service in 1983. A fully navalized version, Fort-M, with increased range and a very high speed, finally finished trials in 1990.

System/missile/ launcher	Name	NATO code number and name	Range/speed	Dimensions (length/ diameter/wingspan)	Fitted on
M-1/V600/ZiF101	Volnya	SAN-1 Goa	16km Mach 1.75	5.88m/0.39m/1.2m	Project 58
M-1/V601/ZiF102	Volnya	SAN-1 Goa	22km Mach 2.15	5.95m/0.39m/1.2m	Project 1134
M-2/V750/SM64	Volkhov-M	SAN-2 Guideline	43km Mach 3.5	10.7m/0.5m/2.5m	Planned for Projects 70, 70Eh
M-3/V800/SM68	–	–	55km	–	Planned for Projects 63, 64, 81
M-11/V611/B189	Shtorm	SAN-3 Goblet	32km Mach 3.5	6.1m/0.6m/1.4m	Projects 1134A, 1134B
S300F/5V55R/B203A or B204	Fort	SAN-6 Grumble	93km Mach 3.8	7.25m/0.45m/0.9m	Project 1134B (*Azov*), Projects 1144, 1164
?/48M6/B203A or B204	Fort-M	SAN-6 Grumble	150km Mach 6	7.5m/0.52m/0.9m	Projects 1144, 1164

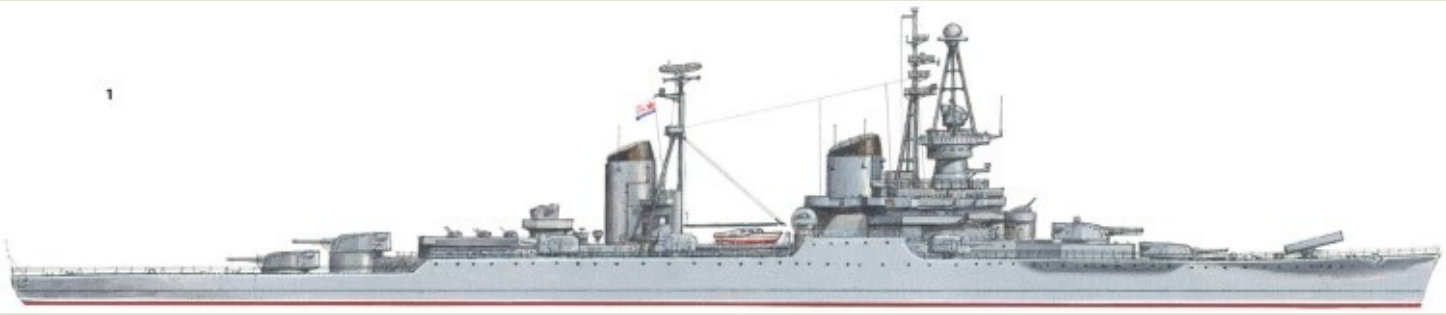
Short-range surface-to-air missiles

These shorter-range missile systems provided a 'point defence' capability if the medium-and long-range systems had failed to intercept a target. Osa-M, adapted from a land-based system, was accepted for service in 1973 after extensive trials. Updates in the late 1970s and 1980s increased its range and improved its capability against sea-skimming missiles. Kinzhal, another adaptation of an army system (in this case the Tor), had a tortuous trials process resulting in its acceptance into service as late as 1989. As a result, a number of vessels were fitted with the hardware for the system without its software being installed. Kortik was one part of an integrated close-in gun and missile system that had been navalized from the army Tunguska air defence system. It entered service in 1989.

A Shtorm launcher armed with two dummy missiles. Updates in the 1970s and 1980s improved its performance against low-flying and sea-skimming targets. This launcher is on the former Soviet aircraft carrier *Minsk*, now a theme park in China. (Vilhelm S: Creative Commons CC0 1.0 Public Domain dedication)

System/ missile/ launcher	Name	NATO code number and name	Range/ speed	Dimensions (length/ diameter/ wingspan)	Fitted on
-/9K33/ZiF122	Osa-M	SAN-4 Gecko	10km Mach 2.35	3.2m/0.2m/0.6m	Projects 1134B, 1144, 1164
3K95/3M95/ 3S95	Kinzhal	SAN-9 Gauntlet	12km Mach 2.5	2.28m/0.74m/ 0.75m	Project 1144 (*Kalinin, Andropov*)
3M87/9M311/-	Kortik	SAN-11 Grison	8km Mach 2.6	2.56m/0.23m/ unknown	Project 1144 (*Kalinin, Andropov*)

B SVERDLOV CLASS



1: The Sverdlov-class cruiser *Admiral Nakhimov* had begun conversion to a test vessel for the Strela missile system and for the Project 67 missile cruiser design before Admiral Kuznetsov's sacking in 1955. She retained most of her pre-existing armament, but a rotating twin launcher was fitted forward of A mounting, with rails for transporting missiles leading aft port and starboard to two missile hangars either side of B mounting. Trials were not successful and the ship, which had been designated Project 67EP, was laid up in 1961 and scrapped in 1962. The Project 67 design had itself been cancelled in July 1957.

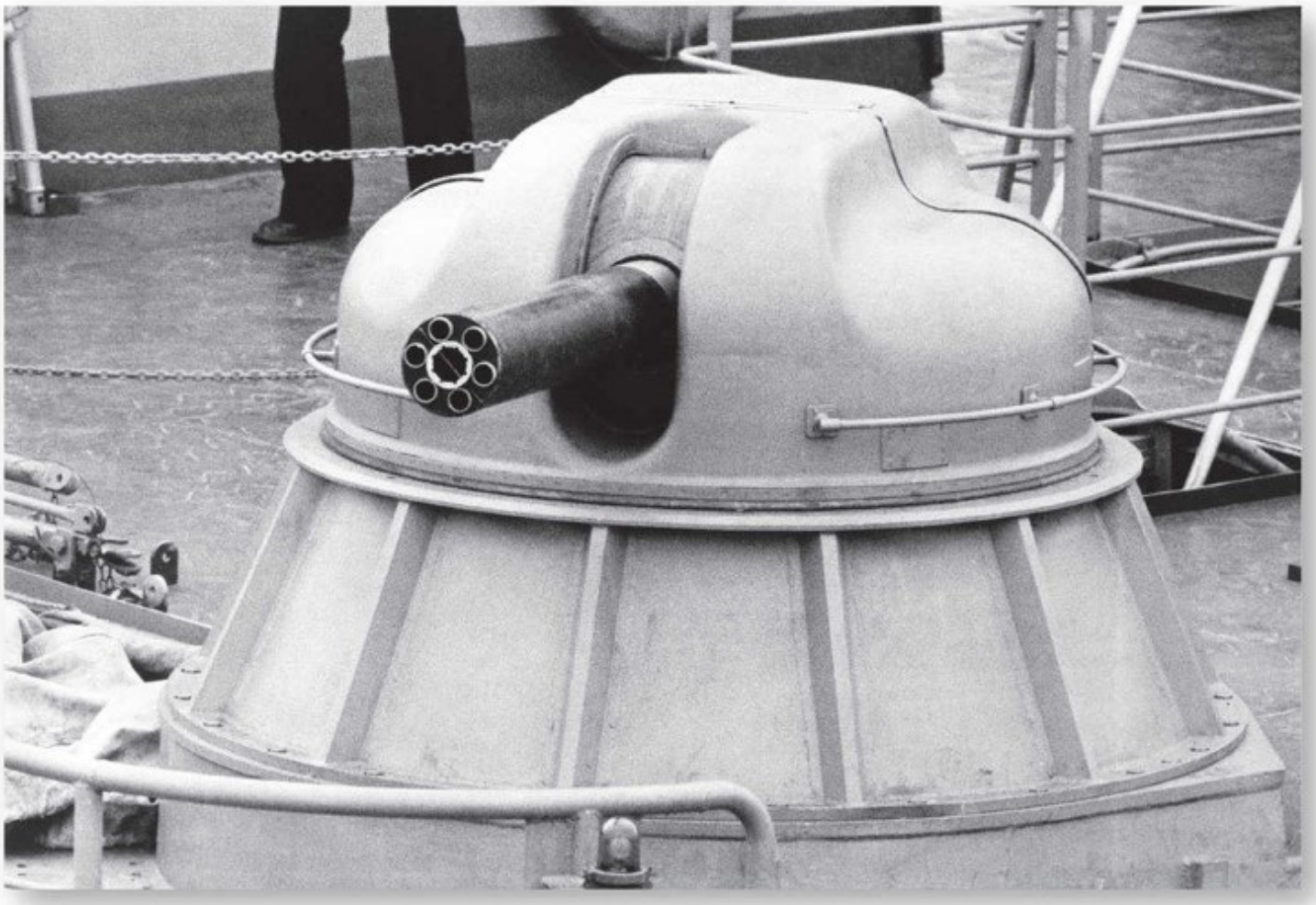
2: Another Sverdlov-class cruiser, *Dzerzhinskiy* (Project 70E), was also used as a test vessel for the V750 Volkhov-M anti-aircraft missile. A rotating launcher was installed aft in place of X mounting and eight 37mm guns and 13 missiles were stored in a magazine below. The guidance radar was the APG-1 with a Kaktus antenna. This proved successful in trials, but the missiles were powered by liquid fuel that had to be laboriously loaded before launch and then removed if the missile were not launched, which undermined the practical utility of the system (in particular its ability to react at short notice to threats). The Volkhov-M was not fitted on any other further surface vessels. *Dzerzhinskiy* herself remained in service until 1987.

Anti-submarine weapons and torpedoes

Name	Details	Fitted on
RBU-6000	Twelve-barrel AS rocket launcher. Re-loaded automatically from below decks in vertical position. Fired in pairs, range *c.* 6,000m. Can be used for shore bombardment.	Projects 58, 1134, 1134A, 1134B, 1144, 1164
RBU-1000	Six-barrel AS rocket launcher. Similar to RBU-6000. Specialized anti-torpedo weapon.	Projects 1134, 1134A, 1134B, 1144
Metel	Anti-submarine missile system. Delivers a torpedo or nuclear depth bomb to the proximity of the target by missile, using a helicopter for targeting. A later version had a dual anti-submarine and anti-ship role (85RU Rastrub). Maximum range 55km. NATO designation: SSN-14 Silex.	Projects 1134A, 1134B, 1144 (*Kirov*)
Type 53: 533mm torpedoes	Usually in quintuple rotating launchers launched from ship. Torpedoes could either be anti-ship torpedoes (sometimes hydrogen-peroxide propelled), anti-submarine homing torpedoes, or nuclear-tipped. Ranges varied according to type, usually between 8 and 19km.	Projects 58, 1134, 1134A, 1134B, 1144, 1164
Type 40: 400mm torpedoes	Anti-submarine torpedoes launched from Ka-25 anti-submarine helicopters using a parachute to steady their fall into the water. They can reach a depth of 400m and have a range of *c.* 13–14km.	Projects 1134, 1134A, 1134B, 1144, 1164

Naval gunnery systems

Name	Role	Calibre	Barrels	Elevation/range	Rate of fire	Fitted on
AK-630	Air defence	30mm	6	88 degrees 4–5km	400 rounds in 6 seconds	Projects 1134A, 1134B, 1144, 1164
AK-725	Air defence	57mm	2	85 degrees 6km	240rpm	Projects 1134, 1134A
AK-726	Dual purpose	76mm	2	85 degrees 15km	90rpm	Projects 58, 1134B
AK-100	Dual purpose	100mm	1	85 degrees 20km	50rpm	Project 1144 (*Kirov*)
AK-130	Dual purpose	130mm	1	80 degrees 22km	70rpm	Projects 1144 (*Frunze*, *Kalinin*, *Andropov*), 1164



The AK-630 close-in weapon system, a radar-guided quick-firing 'Gatling' type mounting used as a last ditch defence against anti-ship missiles. (USN: US federal government, public domain)

Helicopters

Name	Details	Fitted on
Ka-25	The standard Soviet shipborne helicopter. There were two naval types: the Ka-25PL anti-submarine variant armed with torpedoes and dipping sonar, and the Ka-25T variant for cruise missile guidance. The NATO code name for these aircraft was 'Hormone'.	Projects 1134, 1134A, 1134B, 1144, 1164
Ka-27	Successor to Ka-25PL, with improved night-time anti-submarine capability. In service in 1980s. NATO code name 'Helix'.	Project 1144

Radars

Radar detects objects beyond the range of eyesight by sending out radio waves, which are then reflected back by any objects such as ships or aircraft. Radar can be used for searching the sea surface or the air, for navigation and target indication, or as fire control and guidance radars for missiles and gunnery. Soviet warships, particularly cruisers, were well known in the Cold War for being festooned with radars and electronic warfare antennae. Some Western analysts compared this unfavourably with the apparently sparse Western equivalents. In fact, the size and

number of many antennae reflected the rudimentary nature of much Soviet technology. It is notable that as Soviet electronic technology caught up with that of the West, their ships began to look more 'Western' in appearance and many antennae shrank in size and number.

The Ka-25 was the standard Soviet shipborne helicopter. There were two types: the Ka-25PL anti-submarine variant armed with torpedoes and dipping sonar, and the Ka-25T variant for cruise missile guidance. The NATO code name for these aircraft was 'Hormone'. (USN: US federal government, public domain)

The Project 1164 ship *Marshal Ustinov*. Above the bridge is the Lev gunnery fire control radar. Atop the foremast is the Fregat air search radar, with two Don navigation radars below. The Argument missile guidance radar is on a plinth underneath and the Flag long-range air search radar on the mainmast. (Don S Montgomery, US Navy: US federal government, public domain)

Type	Name	NATO code name	Details	Fitted on
Long-range air/ surface search and target designation	MR-300 Angara	Head Net A	Air and surface surveillance radar. Range at medium altitude *c.* 110km.	Project 58
	MR-310U Angara M	Head Net C	Air and surface surveillance radar. Range (surface): 22 nautical miles (nm) (40.7km); (air, medium altitude): *c.* 120km. Consists of two MR-300 radars, one at 30 degrees. Has a height-finding capability.	Projects 1134, 1134A, 1134B. Retrofitted to some Project 58 cruisers.
	MR-500 Fut/Kliver	Big Net	Air search radar. Range at high altitude up to 370km	Project 1134
	MR-600 Voshkod	Top Sail	Large 3D air search radar	Projects 1134A, 1134B
	MR-800 Flag	Top Pair	3D air search radar combining MR-600 and MR-500 antennae	Projects 1144, 1164
	Fregat	Top Steer	3D air search radar combining MR-600 and MR-302 antennae	Projects 1144, 1164
	MR-700 Fregat-M	Top Plate	3D air search radar	Projects 1144 (*Kalinin*), 1164 (*Chervona Ukraina*, *Lobov*)
	Podberezovik	Big Screen/Flat Screen	Planar array 3D air search radar	Project 1134B (*Kerch*)
Navigation	Volga	Don 2/Don Kay	Standard Soviet navigation radar. Usually 1 Don 2 and 2 Don Kay antennae on each vessel.	Projects 58, 1134, 1134A, 1134B, 1164
	MR-320 Vaigach	Palm Frond	Successor to Volga, initially replacing Don 2, then whole Volga installation.	Projects 1144, 1164
Guidance and fire control	Binom	Scoop Pair	P35 guidance	Projects 58, 1134
	Kasatka	Punch Bowl	Granit guidance	Project 1144
	Sprut	Eye Bowl	Metel guidance	Project 1144
	Argument/Argon	Front Door/Front Piece	P35/Bazalt guidance	Projects 1144, 1164
	4R90 Yatagan	Peel Group	Volnya guidance	Projects 58, 1134
	4R60 Grom	Head Light	Shtorm and Metel guidance	Projects 1134A, 1134B
	4P33	Pop Group	Osa-M guidance	Projects 1134B, 1144, 1164
	Volna	Top Dome	Fort guidance	Projects 1144, 1164
	3R95	Cross Sword	Kindzhal guidance	Project 1144 (*Kalinin*)
	MR-105 Turel	Owl Screech	76mm fire control	Projects 58, 1134B
	MR-103 Bars	Muff Cob	57mm fire control	Projects 1134, 1134A
	MR-114 Lev	Kite Screech	100mm/130mm fire control	Projects 1144, 1164
	MR-123 Vympel	Bass Tilt	30mm fire control	Projects 1134A, 1134B, 1144, 1164

Marshal Ustinov's rear deckhouse. This image shows the large Volna guidance radar for the Fort missile system. Below to the right can be seen a ceremonial saluting gun and to the left a 4P33 guidance radar for the Osa-M missile system. (Don S Montgomery, US Navy: US federal government, public domain)

Sonars

Sonar is similar to radar, but operates under the surface of the water and sound waves are sent out rather than radio waves. The thermal layers of the sea can interrupt the travel of sound waves, producing difficulties in the detection of objects. As a result, variable depth sonars, towed sonars and dipping sonars have been developed to counter this problem.

In addition to the ship sonars listed below, shipborne Ka-25 helicopters deployed the Oka 2 active/passive dipping sonar and Ka-27 helicopters the VGS-3.

Name	NATO code name	Details	Fitted on
MG-15 Herkules	Wolf Paw	High frequency scanning sonar. In service 1957.	Projects 58, 1134
MG-312 Titan	Bull Nose	Scanning sonar. In service 1960.	Projects 1134A, 1134B
MG-325 Vega	Mare Tail	Variable depth sonar	Project 1134B
MG-335 Platina	Bull Horn	Sonar system with hull-mounted and towed elements	Project 1164
Polinom	Horse Jaw/Horse Tail	Sonar system with bow and variable depth elements	Project 1144

Electronic warfare systems

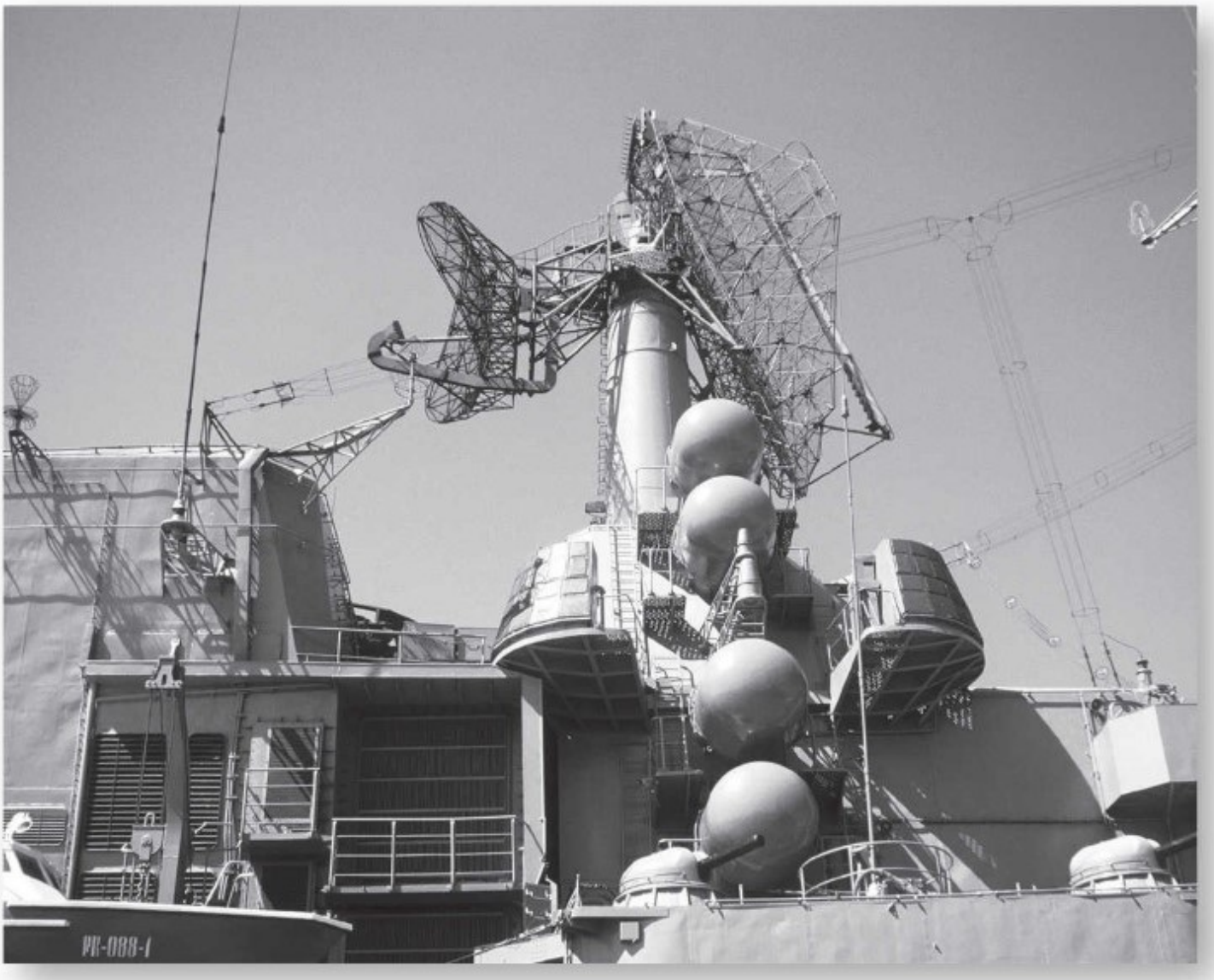
Electronic warfare systems are primarily of three types: intercepts, jammers and decoys. The first detects enemy radar signals, the second jams those signals and the third fires decoys (usually 'chaff' or strips of metal) to confuse enemy radar. Soviet electronic warfare (EW) systems were originally developed from captured German systems in World War II. In comparison to Western EW installations, Soviet systems were large, relatively bulky and potentially very dangerous to their ships' crews, but as the Cold War progressed their capabilities improved significantly.

EW type	Name	NATO code name	Details	Fitted on
Intercepts	–	Bell Tap	Could intercept to a 2.5-degree accuracy. Cues in Gorzuf jammers.	Projects 1134, 1134A, 1134B
	Zaliv MRP-11/MRP-12	Bell Clout/Bell Slam	Less accurate than Bell Tap but could intercept a wider range of frequencies	Projects 58, 1134, 1134A, 1134B
	Zaliv-P MRP-11/ MRP-12	Bell Thump	Combined Zaliv antennae into a single radar-dome	Project 1144 (*Kirov*, *Frunze*, *Kalinin*)
	MRP-13	Bell Bash	Added additional band to Zaliv-P intercept	Project 1144 (*Kirov*, *Frunze*, *Kalinin*)
	MRP-14	Bell Nip	Associated with controlling decoy launchers – combined intercept and jammer	Projects 1144 (*Kirov*), 1164, 1134B (*Kerch*, *Petropavlovsk*)
	MP-404	Rum Tub	Associated with guiding Bazalt and Granit missiles	Projects 1144 (*Kirov*), 1164, 1134B (*Kerch*, *Petropavlovsk*)
Jammers	Krab 11	Top Hat A	Rudimentary jammer	Project 58
	Krab 12	Top Hat B	Rudimentary jammer that produced a false radar picture	Project 58
	Gorzuf MP-403	Side Globe	Designed to jam enemy radars long enough to allow anti-ship missiles to be fired	Projects 1134, 1134A, 1134B, 1144 (*Kirov*), 1164
	MP-405	Wine Flask/Wine Glass	Successor to Gorzuf	Project 1144 (*Frunze*, *Kalinin*)
Decoys	PK-2/ZiF-121	–	Twin-barrel trainable chaff launcher	Projects 58, 1134, 1134A, 1134B, 1144, 1164
	PK-10	–	10-barrel chaff launcher, introduced 1989	Project 1164 (*Chervona Ukraina*)
	Note: floating radar decoys were also in use by the 1980s			

EARLY GUIDED MISSILE CRUISER DESIGNS

Design development

Towards the end of World War II, Stalin's naval staffs began to plan a post-war fleet: pre-war ships, including the Project 68 Chapaev-class cruisers, were to be completed, whilst new designs for vessels would also be developed. A new ten-year naval programme for the period 1946 to 1955 was approved in late 1945 and included four battlecruisers of the Project 82 design and 25 light cruisers of the Project 68 bis Sverdlov class. Designs for battleships, aircraft carriers and heavy cruisers were considered but did not go ahead. The Project 68bis design (Sverdlov class) was approved in May 1947 and the Project 82 design in March 1950. Both these types were traditional gun- and torpedo-armed designs, and were part of a wider traditional ocean-going fleet envisaged by Stalin, despite considerable development work being undertaken at the time on ballistic and cruise-guided missiles using German technology by the Ministry of Armaments and the Ministry of Aircraft Industry.



Marshal Ustinov's mainmast. Above the two AK-630 mountings are four vertically arranged radar-domes for the Gorzuf jammers. Between the second and third radar-dome are two MRP-14 intercepts with two large quarter-cylinder MP-404

intercepts either side. Atop the mainmast is the Flag radar. (Don S Montgomery, US Navy: US federal government, public domain)

On Stalin's death, three of the battlecruisers were under construction, whilst six of the cruisers had been completed, with a further 11 under construction. However, with Stalin's demise the conception of a conventionally armed battle fleet capable of holding its own against US and British battleships and cruisers on the high seas also died. Admiral Kuznetsov, the navy's commander-in-chief, who had survived purges and temporary disgrace in the final paranoid years of Stalin's rule, set about trying to salvage what he could from an over-ambitious programme. From the third ship onwards the Project 82 ships were re-designed as missile cruisers and three more were ordered, whilst similar plans were advanced for the uncompleted Project 68bis ships. Two anti-ship missiles were in the frame for these two vessels: the P35 long-range missile and the Strela missile based on the air-launched Komet (both described here)

Project 82R

Displacement (tons)	38,500
Armament	2 quadruple launchers for P5 (24 missiles) 3 triple 304mm mountings 6 twin 130mm mountings 12 twin 76mm mountings
Propulsion	Steam turbines, 280,000shp Range 5,000nm (9,260km) at 18 knots
Complement	Over 1,700

In the two years following Stalin's death, the senior Soviet leadership jostled for position and supremacy within the Politburo. In 1955 Nikita Khrushchev finally emerged victorious: Kuznetsov was unlucky to have tied himself to the losing factions and was dismissed. Khrushchev cancelled the Project 82R and ordered Kuznetsov's successor, Admiral Gorshkov, to eschew any attempts at building a blue-water surface fleet and give primacy to supporting land warfare, submarines and guided missiles. Work did continue on designing a number of missile-armed conversions or derivatives of the Project 68bis cruisers, as part of planning for the 1956–65 construction programme, but design work was finally stopped in July 1957 and all but two of the Sverdlov class remained conventional cruisers through their service lives. The basic details of the pre-1957 abortive designs are set out in the table below.

	Project 67	Project 63	Project 64	Project 70	Project 81
Role	Medium-range anti-ship missile cruiser	Long-range anti-ship missile cruiser	Long-range anti-ship missile cruiser	Air defence cruiser	Air defence cruiser
Number of ships	4 plus more (converted from completed Sverdlovs)	7 (Sverdlov class follow-on: to be built 1961–64)	6 (converted from completed Sverdlovs)	Not known (converted from completed Sverdlovs)	5 (to be completed 1960–61)
Main armament	2 twin SM-58 launchers for Strela missiles (15 missiles in box magazines) 4 twin 100mm SM-5-1 mountings (later units with twin SM-62 mountings) 6 quad 57mm ZiF-75 mountings	4 SM-69 launchers for P40 missiles (24 missiles) M3 system: 2 twin SM-68 launchers for V800 missiles (20 missiles) M1 system: 4 twin ZiF-101 launchers 4 twin 76mm ZiF-67 mountings	2 quad SM-77 launchers for P5/P7 missiles M3 system: 2 twin SM-68 launchers for V800 missiles (20 missiles) M1 system: 4 twin ZiF-101 launchers for V600 missiles (64 missiles) 4 twin 76mm ZiF-67 mountings	3 twin SM-64 launchers for V750 missiles (44 missiles) 3 triple 152mm MK-5 mountings 4 twin 100mm SM-5-1 mountings 4 quad 57mm ZiF-75 mountings	M3 system: 4 twin SM-68 launchers for V800 missiles (40 missiles)

The two Sverdlov-class ships that were converted were both experimental: see colour plate commentaries for details.

Sverdlov-class missile conversions

Name	Builder	Laid down	Launched	Completed	Converted
Dzerzhinskiy	Admiralty Yard	31/12/48	31/8/50	18/8/52	1960–62
Admiral Nakhimov	Admiralty Yard	27/6/50	29/6/51	27/3/53	1955–57

The cancellation of the Project 82R and the missile versions of the Project 68bis meant that large numbers of P35 missiles and their attendant launchers and guidance radars had been completed or were in production, but there were no vessels on which they could be fitted. Gorshkov gained Khrushchev's approval for smaller missile cruisers, using an enlarged destroyer hull, with launchers for P35 and V600 missiles. The Project 58 design lacked many of the command capabilities of a cruiser and was initially designed as a platform for launching nuclear-tipped P35 missiles against strategic enemy targets in Europe. The submarine equivalent of the Project 58 cruisers were the Project 659 and Project 675 cruise missile-launching submarines (NATO: Echo I and Echo II). A further policy change by Khrushchev in 1959 reassigned the surface-to-surface nuclear strike role away from the navy to the newly created rocket forces, so as described earlier the P35 was re-designed to give it an anti-ship capability. The Project 58 design was re-engineered to allow the ship to update the target co-ordinates for the Progress missile whist in flight – its target would now be moving at sea rather than static ashore. The cruiser generally received these co-ordinates from surveillance aircraft. These ships were therefore turned into relay stations as well as launch platforms, but they were still working within an operational context in which the commanders had little autonomy and missile strikes would be planned and organized from shore-based command posts. The ship could guide four P35 missiles at once.

This aerial view of *Admiral Golovko* before modernization shows the extent to which the huge quadruple launchers for the P35 missile system dominate the ship's design. (USN: US federal government, public domain)

KYNDA CLASS (PROJECT 58)

Groznyy	
Displacement (tons)	4,300 light, 5,550 full load
Dimensions	Length 142m Beam 15.8m Draught 5.3m
Armament	2 quadruple launchers for P-35 (16 missiles) 1 twin launcher for Volnya (16 missiles) 2 twin AK-726 (1,250 rounds) 2 RBU 6000 rocket launchers 2 triple torpedo tubes
Sensors	Radar: 2 Angara, 2 Don-2, 2 Binom, Yatagan, Turel Sonar: Herkules EW: Zaliv, Krab
Propulsion	2 steam turbines, 4 high pressure boilers, 2 shafts, 91,000hp, giving 34 knots design speed Range: 6,000nm (11,112km) at 14.5 knots
Complement	304
Chief designer	V. A. Nikitin

This view of *Groznyy* shows her radars to good effect. Visible between her fore- and mainmasts is one of her two Plinth Net satellite communication radars. None of the ships of the class were completed with this system, which meant that their ability to provide in-flight target information for their P35 missiles was severely limited. (USN: US federal government, public domain)

C KYNDA AND KRESTA I CLASSES

1: This shows *Admiral Golovko* following her modernization. Her career was unexpectedly extended in the 1990s when she was taken out of the reserve and made the flagship of the Black Sea Fleet. She was finally retired in 2003, at 39 years of age: she holds the record for the longest-serving Soviet missile cruiser. From bow to stern, her weapon systems are: two RBU-6000 rocket launchers abreast each other, the twin-armed Volnya launcher, the forward quadruple SM70 launcher for the P35, two of the four AK-630 anti-missile guns on a deckhouse abreast the first funnel, two triple torpedo tubes amidships, the aft SM70 launcher, and the two twin AK-725 mountings aft. The main radars are: a Don navigation radar on a platform extending from the bridge roof, the Yatagan guidance radar for Volnya over the bridge, and two small platforms either side of the foremast for Vympel fire control radars for the AK-630s. Halfway up the foremast, facing forward, is the first Binom P35 guidance radar, and on a platform near the top of the foremast is a further Don navigation radar. At the top of both masts are Angara-A air search radars. On two platforms halfway up the mainmast, facing forward, are the Plinth Net satellite data links. The second Binom faces aft. On a pedestal aft of the second funnel is the Turel fire control radar for the AK-725.

2: This is *Vladivostok*, of the Project 1134 design. She is unmodernized and her armament is similar to the preceding class. She has RBU-6000s forward, followed by a twin launcher for Volnya, two twin P35 launchers either side of the bridge structure, quintuple torpedo tubes aft of the funnel, two twin 57mm guns, then the aft Volnya launcher with the helicopter pad and hangar right aft. Her radars are: two Yatagan fore and aft, Binom halfway up the foremast, Plinth Net either side of the foremast, Ankara-M atop the foremast and Kliver on a platform above the funnel. The four Gorzuf jammers in domes are prominent on the foremast also.

Construction programme

Four ships were built of the Kynda class, all at the Zhdanov Yard in Leningrad. The concept was authorized on 25 August 1956, the sketch design was approved in October 1957 and the final design on 15 August 1958. The ships were very fast vessels – the design speed of 34 knots was exceeded by a half knot on *Groznyy*'s trials. Some sources state that up to ten ships were planned, but whether this was the case or not, the design was rapidly superseded by the Kresta I class. None of the ships were completed with the Plinth Net data link, thus limiting their ability to receive targeting data from other sources.

Name	Laid down	Launched	Completed
Groznyy	23/2/60	26/3/61	30/12/62
Admiral Fokin	5/10/60	19/11/61	28/12/64
Admiral Golovko	20/4/61	18/7/62	30/12/64
Varyag	13/10/61	7/4/63	20/8/65

In-service modifications

Groznyy, *Admiral Fokin* and *Admiral Golovko* were subsequently fitted with the Plinth Net data link in the 1970s, but *Varyag* never received hers.

Varyag, in need of re-painting, is overflown by a US Navy Orion aircraft in 1987. (USN: US federal government, public

domain)

Varyag, *Groznyy* and *Admiral Golovko* were modernized in the 1980s: two deckhouses were placed either side of the forward superstructure and at the corner of each were placed sextuple AK-630 anti-missile close-in weapon systems. These were guided by two Vympel fire control radars, one either side of the foremast. Another deckhouse was placed between the torpedo tubes amidships. *Varyag* received Angara-M radars on both masts in this refit, whilst *Groznyy* and *Admiral Golovko* retained their original Angara. *Admiral Fokin* received one Angara-M on her mainmast in the 1970s.

KRESTA I CLASS (PROJECT 1134)

Design development

The Project 58 ships were in effect stop-gap vessels. Their successors derived directly from the 1958–65 seven-year naval plan. This plan used army terminology to divide up the different fleets of the Soviet Navy and assign their roles. Each fleet was divided into 'arms', each with a different role such as anti-submarine warfare or anti-surface warfare. Each 'arm' was split into 'divisions' consisting of different types of vessels such as submarines, cruisers or shore-based aircraft. A 'division' was then divided into 'brigades'. In the context of the cruiser, there would be three such brigades in a division, each consisting of seven cruisers. One would be a 'heavy brigade' and the other two 'light brigades'. The 1958 plan therefore envisaged three classes of cruiser – the 'heavy brigade' cruisers (Project 934) would be armed with the new long-range Bazalt anti-ship missile to break up enemy formations, whilst the 'light brigade' (Project 934A) would be armed with the shorter-range Malachit anti-ship missile to finish off enemy forces. Each brigade would be commanded by a flagship (Project 934K), which would have the same armament as the Project 934 cruisers but be lengthened, having a hangar for five data-linking and targeting helicopters. A fourth cruiser type, Project 962, would have acted as a radar picket, but this design was not taken forward. The 1958 plan stipulated one missile cruiser division in each of the Northern and Pacific fleets, whilst Black Sea and Baltic fleets would have had two and three divisions each, but of missile frigates (Project 935) in the heavy brigades and missile corvettes (Project 1234) in the light brigades. The main adversary was expected to be NATO carriers with nuclear-armed bombers and their escorts.

This concept was beset by a range of problems from the outset. Aside from the ambition of the plan, which probably ran ahead of the available resources, the Project 934K design was cancelled by Khrushchev, leaving the brigades without flagships and tying them to a greater extent to land-based command facilities. Secondly, the planned missile systems were behind schedule in their development: Bazalt would not be ready in time, so the Project 934 ships would have to be completed with the older P35 missiles instead. Similarly, the successor to the Volna air defence missile, the Shtorm, was also behind in development, so the first Project 934s would not receive that system either.

When *Vitse Admiral Drozhd* emerged from refit in 1975 new deckhouses were placed on either beam amidships, each with two AK-630 anti-missile gun systems. The Vympel fire control radar for the starboard AK-630s is just visible behind the bridge. (USN: US federal government, public domain)

Finally, in the early 1960s whilst the first cruisers of the heavy brigade were beginning construction and the materials were being assembled for the first light brigade cruisers, the whole operational concept was abandoned. The arrival of US Polaris submarines in large numbers transferred the main nuclear threat to the undersea environment. This unequivocally transferred the focus of deep ocean operations towards the anti-submarine role. The first four Project 934s were too far along in their construction, so were completed to the original plan but re-designated Project 1134, and would be known to NATO as the Kresta I class.

Vitse Admiral Drozhd from above. Her refit also resulted in a new deckhouse being placed in the space behind the bridge structure, presumably to accommodate electronics associated with the AK-630s and their fire control radar. (Thiel, US Navy: US federal government: public domain)

The next three, plus the first seven light brigade cruisers, were modified and re-designated Project 1134A at short notice with this new role in mind (Kresta II class, described in the next section). The four Kresta I-class cruisers therefore represent a truncated element of an abandoned operational concept armed with previous-generation weaponry. Despite this, when they appeared from 1967 they impressed Western observers as large, powerfully armed ships that seemed to match the Soviet Union's increasing willingness to operate worldwide as a blue-water naval force.

In comparison with the Project 58 cruisers, they had an enhanced air defence capability, with a second launcher for Volna, two twin 57mm guns in place of the 76mm, and a hangar for a targeting helicopter – a first for a conventional Soviet warship. Fewer P35 missiles were carried and their launchers had no re-loads. The considerable length of time required to re-load and fuel the launchers on the Project 58s no doubt militated against the usefulness of such reloads.

Vladivostok was the only Project 1134 ship not to be modernized to take the AK-630 anti-missile gun system. She is shown here in 1987. (USN: US federal government, public domain)

Admiral Zozulya	
Displacement (tons)	6,140 light, 7,600 full load
Dimensions	Length 155.6m Beam 16.8m Draught 6.8m
Armament	2 twin launchers P-35 (4 missiles) 2 twin launchers for Volnya (32 missiles) 2 twin AK-725 (4,200 rounds) 2 RBU-6000 rocket launchers 2 quintuple torpedo tubes 1 Ka-25 helicopter
Sensors	Radar: Kliver, Angara M, 2 Don-2, Binom, 2 Yatagan, 2 Bars Sonar: Herkules EW: Zaliv, Gorzuf, Bell Tap
Propulsion	2 steam turbines, 4 high pressure boilers, 2 shafts, 91,000hp = 32 knots Range: 5,000nm (9,260km) at 18 knots
Complement	360

D KRESTA II AND KARA CLASSES

The top plate shows *Vasiliy Chapaev* of the Project 1134A design. Her armament consists of RBU-6000 forward, the twin-armed Shtorm launcher in front of the bridge, the Metel launchers either side of the bridge, two of the four AK-630s on a deckhouse between the bridge structure and the foremast, quintuple torpedo tubes aft of the funnel, the twin 57mm guns, the aft Shtorm launcher, RBU 1000 rocket launchers either side of the hangar and a hangar and raised flightdeck for a Hormone helicopter. Her radar suite consists of: Grom guidance radars fore and aft for both Metel and Shtorm (one atop the bridge, the other on a high pedestal between the 57mm guns), Vympel fire control for AK-630s just aft of the bridge, Voshkod air search radar atop the foremast, Ankara-M on a platform above the funnel, and Bars 57mm fire control on platforms either side of the funnel. She also has Gorzuf jammer domes up on the foremast and PK-2 chaff launchers between the forward Shtorm launcher and the bridge. The Project 1134B vessel *Nikolaev* (below) has similar weapon systems and radar to the ships of the Project 1134A, but there are some important differences. The gunnery armament has been enhanced and moved: it now consists of two twin 76mm forward of the mainmast. The Osa-M short-range air defence system has been added with 'pop-up' launchers either side of the mainmast, and the AK-630s have been moved aft to deckhouses either side of the funnel. In terms of radar, the fit is similar. Angara-M and Voshkod have been swapped: the former is now on a small lattice foremast, and the latter on a large mainmast forward of the funnel. The Osa-M guidance radars (4P33) are on platforms below the funnel and the Turel fire control radars for the 76mm are placed either side of the foremast. The PK-2 chaff launchers have been placed forward of the Shtorm launcher.

Construction programme

As stated above, the four ships were a remnant of what should have been seven 'heavy brigade' cruisers. Like their predecessors, they were constructed at the Zhdanov Yard in Leningrad. Their staff requirement was approved in December 1961.

Name	Laid down	Launched	Completed
Admiral Zozulya	26/7/64	17/10/65	8/10/67
Vitse Admiral Drozhd	26/10/65	18/11/66	27/12/68
Vladivostok	24/12/64	1/8/67	11/9/69
Sevastapol	8/6/66	28/4/67	25/9/69

In-service modifications

In 1975 *Vitse Admiral Drozhd* emerged from a refit that fitted her with four AK-630 anti-missile gun systems. *Sevastopol* emerged from a similar refit in 1980, fitted for but not with the AK-630s, whilst the refit of *Admiral Zozulya* took six years and was only completed in 1991, just as the Soviet Union was beginning to collapse. *Vladivostok* was never modernized in this way. In the late 1970s and 1980s, the ships in this class finally received Plinth Net data link arrays.

KRESTA II CLASS (PROJECT 1134A)

Design development

As stated above, the vessels of this class had originally been planned as Project 934 or Project 934A cruisers. They were rapidly re-designed as anti-submarine warfare warships in the early 1960s. The P35 anti-ship missiles were replaced by the Metel system. This included canisters for eight guided rockets carrying anti-submarine torpedoes or nuclear depth bombs – an effective way to deliver torpedoes against an underwater adversary quickly whilst keeping the ship at a safer distance. Western analysts initially thought that Metel was a new anti-ship missile system, and this view was not changed until the mid-1970s when an opened canister was photographed, showing a torpedo suspended below the missile in the canister. The ships also had a more pronounced rake to the bow to provide clearance for the ship's anchor beyond the Titan bow sonar, which was powered by its own dedicated 750kW turbo generator. The Shtorm anti-aircraft missile system was now available, so it replaced the Volnya system, and the class's search radar was updated to the Voshkod, doubling the range of detection of high-altitude targets. The ships were fitted with four sextuple AK-630 anti-missile gun systems from the outset rather than having them retrofitted like their predecessors.

Admiral Yumashev in 1985. Note the quadruple Metel launchers either side of the bridge structure, and the huge Grom guidance radars for the Metel system – the first over the bridge, the second behind the funnel. (USN: US federal government, public domain)

Kronstadt	
Displacement (tons)	6,500 tons light, 7,940 tons full load
Dimensions	Length 156.5m Beam 17.2m Draught 5.96m
Armament	2 quadruple launchers for Metel (8 missiles)

	2 twin launchers for Shtorm (96 missiles) 2 twin AK-725 (2,200 rounds) 4 sextuple AK-630 (8,000 rounds) 2 RBU 6000 rocket launchers 2 RBU 1000 rocket launchers 2 quintuple torpedo tubes 1 Ka-25 helicopter
Sensors	Radar: Voshkod, Angara M, 2 Don-Kay and 1 Don-2 navigation, 2 Grom, 2 Bars, 2 Vympel Sonar: Titan EW: Zaliv, Gorzuf, Bell Tap
Propulsion	2 steam turbines, 4 high pressure boilers, 2 shafts, 91,000hp giving design speed of 32 knots Range: 5,200nm (9,630km) at 18 knots
Complement	343
Chief designer	V. F. Anikiyev

Marshal Timoshenko overflown by an Ilyushin Il-38. Note the helicopter on the flightdeck. Compared to the Project 1134, the 1134A had a raised flightdeck to enable helicopter operations in more difficult seas. So as not to interfere with the Shtorm launcher arcs, a complex hangar system had to be designed: the roof lifted up and the helicopter rose one deck on a lift before reaching the flightdeck. (USN: US federal government, public domain)

Construction programme

The ships of this class consisted of modified versions of the last three Project 934s and all the first brigade of Project 934As. All were built at the Zhdanov Yard in Leningrad, as were their predecessors. The first ship of the class, *Kronstadt*, received the earlier version of the Grom guidance radar, which was not capable of providing guidance for the Metel anti-submarine missile system, thus limiting the effectiveness of the ship as an anti-submarine platform. The other vessels received the later version of the Grom. The first four vessels did not receive the Vympel fire control radars for their AK-630 systems and therefore relied on manual targeting. The last three ships of the class had an enlarged deckhouse between the bridge structure and the large foremast, presumably providing additional space for electronics. *Admiral Makarov* received an

experimental set of equipment for underway replenishment in place of the ship's boats.

Name	Laid down	Launched	Completed
Kronstadt	12/12/66	10/2/68	29/12/69
Admiral Isakov	15/1/68	22/11/68	28/12/70
Admiral Nakhimov	15/1/68	15/4/69	29/11/71
Admiral Makarov	23/2/69	22/1/70	25/10/72
Marshal Voroshilov	20/3/70	8/10/70	15/9/73
Admiral Oktyabrskiy	2/6/70	21/5/71	28/12/73
Admiral Isachenkov	30/10/70	28/3/72	5/11/74
Marshal Timoshenko	2/11/72	21/10/73	25/11/75
Vasiliy Chapaev	22/12/73	28/11/74	30/11/76
Admiral Yumashev	17/4/75	30/9/76	30/12/77

Vasiliy Chapaev from the air in 1983. Note the Ankara-M radar on a circular platform over the ship's funnel. The large Voshkod air search radar is facing towards the aircraft taking the photograph. (PH 1 Loveall, US Navy: US Federal government, public domain)

In-service modifications

This class received very few modifications in service, and those vessels lacking certain systems on completion, such as *Kronstadt*'s lack of Metel guidance on Grom, and the lack of modern fire control for the AK-630s, did not generally receive them during in-service refits or updates. *Marshal Voroshilov* was renamed *Khabarovsk* in 1991, a few months before the collapse of the Soviet Union.

Admiral Makarov. The Project 1134A class was the first cruiser class to be completed with AK-630 guns. These are prominent in this photograph, on the corners of a deckhouse that extends out to the ship's side abaft the bridge. (USN: US federal government, public domain)

KARA CLASS (PROJECT 1134B)

Design development

Project 1134B was clearly a development of its predecessors, but it appears to have been designed from a very early stage as an anti-submarine ship. The staff requirement was issued in August 1964, a few months before the fall of Khrushchev (therefore pre-dating the adoption of the new pro-submarine strategy), but one year after the first visit of a US Polaris boat to the eastern Mediterranean. This class was designed and built in the Black Sea and probably with operations in the eastern Mediterranean in mind.

The Project 1134B vessels had a number of characteristics that demonstrated this focus. The ships were powered by gas turbines, which allowed for economical fuel consumption when cruising turbines were in use, ease of maintenance and a reduction in engine room manpower through semi-automated machinery control. Soundproofing was used around the ship's gearbox, and the ship's turbines were placed on beds above the hull structure, thus reducing the ship's underwater acoustic signature. An additional single gas turbine provided electrical power for the ship's sonar systems, which now included the Vega variable-depth sonar. The class was armed with AK-726 76mm guns in place of the 57mm and, to further complement the ship's air defence, the Osa-M short- to medium-range missile system with its distinctive 'pop-up' launchers. The increased air defence capabilities and command facilities reflected the need to operate beyond shore-based air cover and command and control.

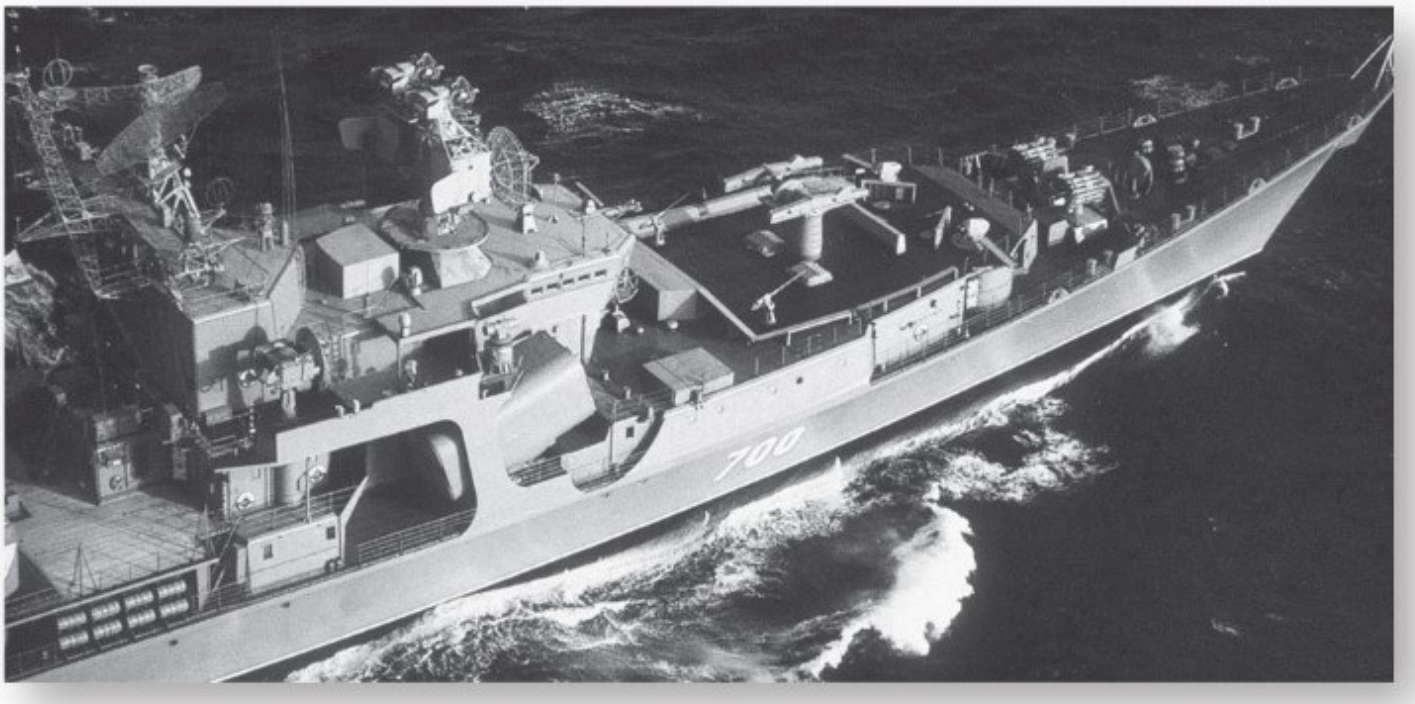
The Project 1134B ships, graceful and formidable looking, were larger than their predecessors, designed from the bottom up for the anti-submarine role, and were the first missile cruisers built at a Black Sea shipbuilders. (Unknown photographer, National Archive # NN33300514 2005-06-30, US federal government, public domain)

Nikolaev	

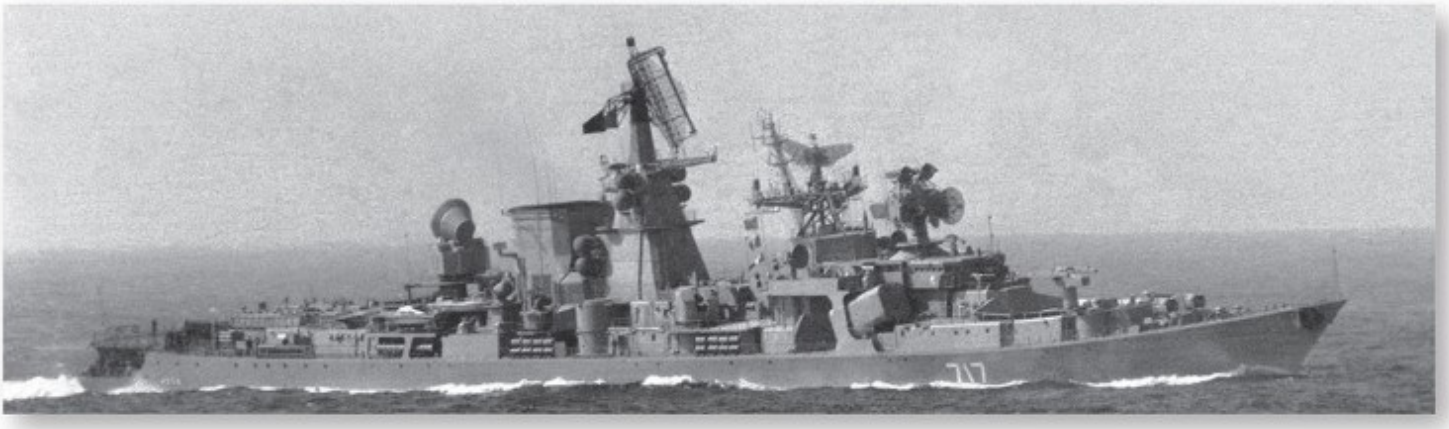
Displacement (tons)	6,700 light, 8,565 full load
Dimensions	Length 173.4m Beam 18.5m Draught 5.74m
Armament	2 quadruple launchers for Metel (8 missiles) 2 twin launchers for Shtorm (72 missiles) 2 twin launchers for Osa-M (40 missiles) 2 twin AK-726 (4,200 rounds) 4 sextuple AK-630 (8,000 rounds) 2 RBU 6000 rocket launchers 2 RBU 1000 rocket launchers 2 quintuple torpedo tubes 1 Ka-25 helicopter
Sensors	Radar: Voshkod, Angara-M, 2 Don-Kay, 2 Grom, 2 4P33, 2 Turel, 2 Vympel Sonar: Titan, Vega EW: Zaliv, Gorzuf, Bell Tap
Propulsion	6 gas turbines, 2 shafts, 96,000hp, giving 32 knots design speed Range: 6,300nm (11,668km) at 18 knots
Complement	380
Chief designer	A. K. Per'kov

Construction programme

The construction programme consisted of seven vessels – the standard Soviet cruiser brigade size – and all were built at the 61 Kommuna shipyard, in Nikolaev on the Black Sea. This yard had specialized in gas turbine production in smaller vessels and had just finished building the run of Project 61 destroyers, so was a natural choice to produce the ship, and as the programme ran concurrently with the Project 1134A ships, the Zhdanov Yard would have lacked capacity in any case. *Nikolaev*, like some of the earlier Project 1134As, was completed without Vympel fire control radars for the AK-630s. *Petropavlovsk* sacrificed her RBU-1000 rocket launchers aft to receive two tactical air navigation aerials either side of her hangar. *Nikolaev* and *Ochakov* had the same electronic warfare fit as the Project 1134As, but the third ship, *Kerch*, received MR-404 intercepts in place of the Zaliv system. The other ships of the class were fitted for, but not with, MR-404. *Azov* was converted during construction into a trials ship for the new Fort air defence missile system.



Externally the Project 1134B vessels looked similar to those of the preceding class, but there were significant internal improvements. The magazine capacities for Shtorm missiles were increased from 48 to 72, and a new and more extensive command system was installed. (USN: US federal government, public domain)



Azov was completed as a trials ship for the Fort air defence missile system. Her rear Shtorm system was removed and vertical launch canisters for 24 missiles were installed, along with the distinctive Volna fire control radar. Her torpedoes were reduced from ten tubes to four to compensate. (USN: US federal government, public domain)

The remaining Project 1134B in service is *Kerch*, shown here in 2009. Based in the Black Sea, she was modernized in the late 1980s, receiving the MR-700 Fregat radar on the mainmast in place of the MR-600. (George Chernilevsky: public domain)

Name	Laid down	Launched	Completed
Nikolaev	25/6/68	19/12/69	31/12/71
Ochakov	19/12/69	30/4/71	4/11/73
Kerch	30/4/71	21/7/72	26/12/74
Azov	21/7/72	14/9/73	25/12/75
Petropavlovsk	9/9/73	22/11/74	29/12/76
Tashkent	22/11/74	5/11/75	21/12/77
Tallin	5/11/75	5/11/76	31/12/79

In-service modifications

Nikolaev, *Ochakov* and *Kerch* received refits between the late 1970s and 1988 and emerged with new IFF (Interrogation: Friend or Foe) aerials either side of the ships' funnels. *Nikolaev* also received an MR-320 surface surveillance/navigation radar set in place of the Don Kay set. *Tallinn* was renamed *Vladivostok* in 1991, a few months before the collapse of the Soviet Union.

KIROV CLASS (PROJECT 1144, PROJECT 1144.2)

Design development

With the construction of missile cruisers disrupted to produce anti-submarine ships, development work began in the late 1960s on a new generation of such cruisers. The earliest studies in 1968 envisaged a ship with nuclear propulsion and armed with six to eight long-range next-generation anti-ship missiles, but the design was considered too limited by Admiral Gorshkov. Taking the design back to the drawing board, the anti-ship capability began to be enhanced. The Bazalt missile system should have replaced the P35s on the Project 934/Project 1134 ships, but delays had meant that it had not been fitted in time. When the delays in Bazalt continued, the Granit missile system began development. Practical problems with re-loading the P35 missiles on the Project 58s had led to fewer such missiles on the Project 1134 ships, but with a more formidable enemy more missiles would be required to knock their ships out in the initial 'shock' attack. Design development therefore focused on the launch of multiple missiles at once. This resulted in the angled canister launching of anti-ship missiles that were counter-sunk within the hull in the Project 1144 ships. This innovation meant that excessive top-weight was not created by multiple above-decks launchers, nor that the firing arcs of other systems and space for sensor arrays were reduced prohibitively. It soon became clear that in order to incorporate not only a sizeable anti-ship missile battery and sufficient self-defence and anti-submarine capability, the vessel would have to be much larger than any previous cruiser design. Nuclear propulsion was proposed from very early on, and this was combined with steam propulsion for boost. In 1970 the major Soviet naval exercise *Okean* exposed the practical problems of placing command on shore in an open seas environment with a large naval force. The Project 1144 design was therefore modified to include increased command and control facilities and in effect place the former shore facilities at sea. The final staff requirement was approved on 25 May 1971. Further exercises in 1975 showed the vulnerability of large vessels to air attack, and the design was changed again to augment the vessels' air defence capability.

Kirov, the first ship of the Project 1144 class. Note the two single 100mm mountings aft. These were replaced by a twin 130mm mounting in later ships. (PH 2 Beech, US Navy: US Federal Government, public domain)

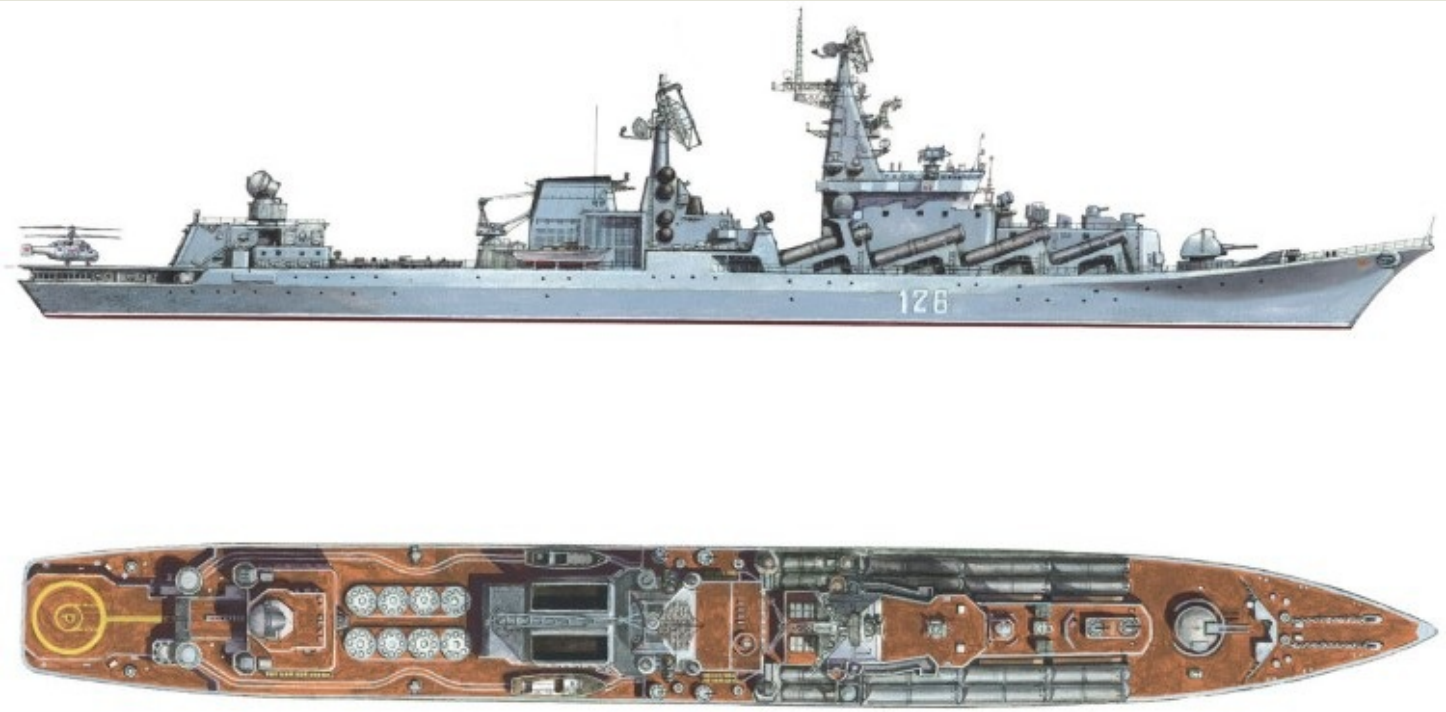
Frunze at sea. The two square pads on the rear edge of the forecastle are spaces for 'pop-up' Kinzhal air defence missile launchers. In the event, neither these nor their guidance radars were actually installed on *Frunze*, and she retained her Osa-M launchers. (Mitsuo Shibata, US Navy: US Federal Government, public domain)

The design included 20 angled below-decks launchers for Granit anti-ship missiles. There were 96 Fort air defence missiles (which had been trialled on *Azov*) in vertical launch silos, one twin launcher for the Metel anti-submarine missile/torpedo system, two 'pop-up' launchers for the Osa-M medium-range air defence system, and no fewer than eight AK-630 sextuple mountings. There were also two 100mm guns in single mountings. This made for a formidable armament, which was combined with armour plating over sensitive zones in the ship, and the full range of radar and electronic warfare capabilities expected of a command cruiser.

Kirov	
Displacement (tons)	24,300 light, 28,000 full load
Dimensions	Length 251.2m Beam 28.5m Draught 9.1 m
Armament	20 launchers for Granit 8 octuple launchers for Fort (96 missiles) 2 twin launchers for Osa-M (40 missiles) 1 twin launcher for Metel (10 missiles) 2 single AK-100

	8 sextuple AK-630 2 quintuple torpedo tubes 1 RBU 6000 rocket launcher 2 RBU 1000 rocket launchers
Armour	100mm over reactor 70mm sides of steering gear, 50mm deck 80mm conning tower
Sensors	Radar: Flag, Fregat, Vaigach, Kasatka, Sprut, Argon, 4P33, Volna, Lev, Vympel Sonar: Polinom EW: Zaliv-P, MRP13, MRP14, MR404, Gorzuf
Propulsion	2 KN-3 nuclear reactors (300 MW each) 2 steam boilers, 2 shafts, 14,000hp, giving design speed of 32 knots Endurance: 60 days
Complement	610
Chief designers	B. I. Kupyenskiy/V. A. Perevalov

E SLAVA CLASS



This plate shows *Slava* as completed. Her armament from fore to aft is: one twin AK-130 130mm mounting, and two AK-630 30mm close-in weapon systems on the deckhouse aft of the 130mm mounting. Either side of the forward superstructure are twinned Bazalt launchers – eight on each side. On deckhouses either side of the mainmast are more AK-630s. Immediately abaft the twin funnel are the circular vertical launch silos for the Fort area air defence system. Either side of the hangar can be seen the launchers for the Osa-M point defence missile system. Her hangar houses a Ka-25 helicopter. From fore to aft, her radars are: Vympel fire control for the AK-630s just below the bridge, Lev AK-130 fire control on the bridge roof, Argon Bazalt guidance on a platform halfway up the foremast, and Fregat air search atop the foremast, with two Vaigach navigation radars immediately below on platforms. On a platform above the last pair of Bazalt launchers on each side of the ship are the radar-domes for the Punch Bowl satellite communication system. Just forward of the amidships AK-630s are two more Vympel fire control radars. Atop the mainmast is the Flag air search radar, and running down either side of the mainmast can be seen the four domes of the Gorzuf jammers with the quarter angled-cylinder MP-404 intercepts. Atop the hangar is the large Volna guidance radar for the Fort missile system, and either side are the smaller 4P33 guidance radars for the Osa-M point defence system.

Construction programme

The enormous size of these ships meant that there were few yards capable of taking on the work. The Baltic Yard was chosen as one of the few with large enough slips: this yard had begun building the ill-fated Project 82 and Project 82R battlecruisers and had constructed the Soviet Union's only completed battleships of the Sovietsky Soyuz class in the 1920s. The first ship took the then-unprecedented time of seven years to complete, indicating the technical and constructional challenge of building such vessels. Modifications were made to the design of the second in the class, *Frunze* (Project 1144.2). Her single 100m guns were replaced by a twin mounting for 130mm guns. She was fitted for, but not with, Kinzhal, the successor to the Osa-M system, but this latter system was also retained on the *Frunze*. In addition, the ship's electronic warfare suite was improved by the replacement of Gorzuf jammers and MR-404 intercept with MP-405.

This image of *Kalinin* was taken in 1994 after she had been renamed *Admiral Nakhimov*. Kortik anti-missile systems have replaced the AK-630s (most clearly visible here on the deckhouses either side of the sunken Granit launchers) of her predecessors. (Allied navy: US Federal Government, public domain)

The next ship in the class included further modifications. *Kalinin* was completed with additional Kinzhal launchers aft and a new close-in weapon system, Kortik – combining both 30mm and 3M88 missiles on a single launcher – in place of the AK-630s. MR-700 replaced the Fregat long-range air search radar.

The fourth ship, *Yuri Andropov*, began construction in 1986 but would not be accepted for service for another 12 years, well after the collapse of the Soviet Union. Her armament was similar to that of *Kalinin* but with the Osa-M missile system removed. A fifth ship, *Dzerzhinskiy*,

was ordered in 1988 and laid down in 1989, but work stopped some months later and the ship was cancelled on 4 October 1990. Her place on the slip at Leningrad was taken by roll-on roll-off ferries. Few modifications were made to the class once in service – for example, *Frunze* never appears to have received her Kinzhal air defence systems.

Yuri Andropov was finally completed following the fall of the Soviet Union. She was renamed *Pyotr Velikiy* (Peter the Great) and on commissioning in 1998 became the Russian fleet flagship. (RIA Novosti archive, image #669522/Grigory Sysoev/CC-BY-SA 3.0)

Name	Laid down	Launched	Completed
Kirov	26/3/74	27/12/77	30/12/80
Frunze	26/7/78	26/5/81	31/10/84
Kalinin	5/83	26/4/86	30/12/88
Yuri Andropov	24/4/86	29/4/89	1998
Dzerzhinskiy	1989	–	–

SLAVA CLASS (PROJECT 1164)

Design development

The appearance of *Slava*, the first Project 1164 ship in 1982, puzzled some Western analysts. She had been completed a few years after both the *Kirov* and also the first-of-class of two new destroyer types, Projects 1155 and 956. Yet she appeared to have an earlier generation of weaponry and electronics. In particular, the Project 1164 ships were fitted with the Bazalt anti-ship missile system, which had not yet been fitted to a large warship and had been superseded by the Granit system. Some analysts saw the *Slava* as a more conservative back-up to the Kirovs in case the latter concept failed, or as a 'low-end' supplement to the more powerful ship. In fact, the Project 1164 had its origins in designs that had been in development since the early 1960s for Bazalt-firing missile cruisers, sharing some of the characteristics of the Project 1134 but armed with the main air defence systems of the Project 1134B (Shtorm and Osa-M). The design took a back seat due to the focus on the anti-submarine and pro-submarine roles, and also as a result of the prolonged development of the troublesome Bazalt missile system. The staff requirement for this design was finally issued in 1972 and the technical design was approved in August 1974.

This view of *Marshal Ustinov*'s forward superstructure shows the enormous size of the Bazalt cruiser missile canisters, arranged at angles in twin groups, the blast from the rear of each canister being deflected into the space below the canisters immediately aft. (USN: US federal government, public domain)

Unlike the Kirovs, the main anti-ship missile battery was not counter-sunk into the hull, which would have resulted in a much larger vessel, nor were the missiles in retractable launchers like the Kresta Is. The fixed 30-degree-angle launch tubes made for a formidable, if less pleasing-looking ship, but they did enable the fitting of 16 of these missiles. The blast from each missile was deflected outwards from below the launcher of the missiles behind, whilst top weight was saved by having the launchers made from fibreglass with metal linings. The Slavas had an air defence capability of 64 vertical-launching Fort missiles, supplemented by two Osa-M pop-up launchers and the now standard battery of AK-630 anti-missile guns. They had a hangar for a Ka-25 targeting helicopter, and the anti-submarine armament consisted of two quintuple torpedo tubes behind shutters in the hull side and anti-submarine rocket launchers. The propulsion was by gas turbine, with four cruise turbines and two boost turbines. They were supplemented by an unusual innovation: a steam turbine driven by the exhausts from the gas turbines to give additional power (a 25 per cent increase) to the cruising gas turbines, which provided fuel efficiency gains of 12 per cent.

Chervona Ukraina, the third of the Project 1164 class, on transit to the Pacific Fleet in 1990 after construction and acceptance trials in the Black Sea. (USN: US federal government, public domain)

Slava	
Displacement (tons)	9,800 light, 11,300 full load
Dimensions	Length 186m Beam 20.8m Draught 7.6m
Armament	16 launchers for Bazalt 8 octuple launchers for Fort (64 missiles)

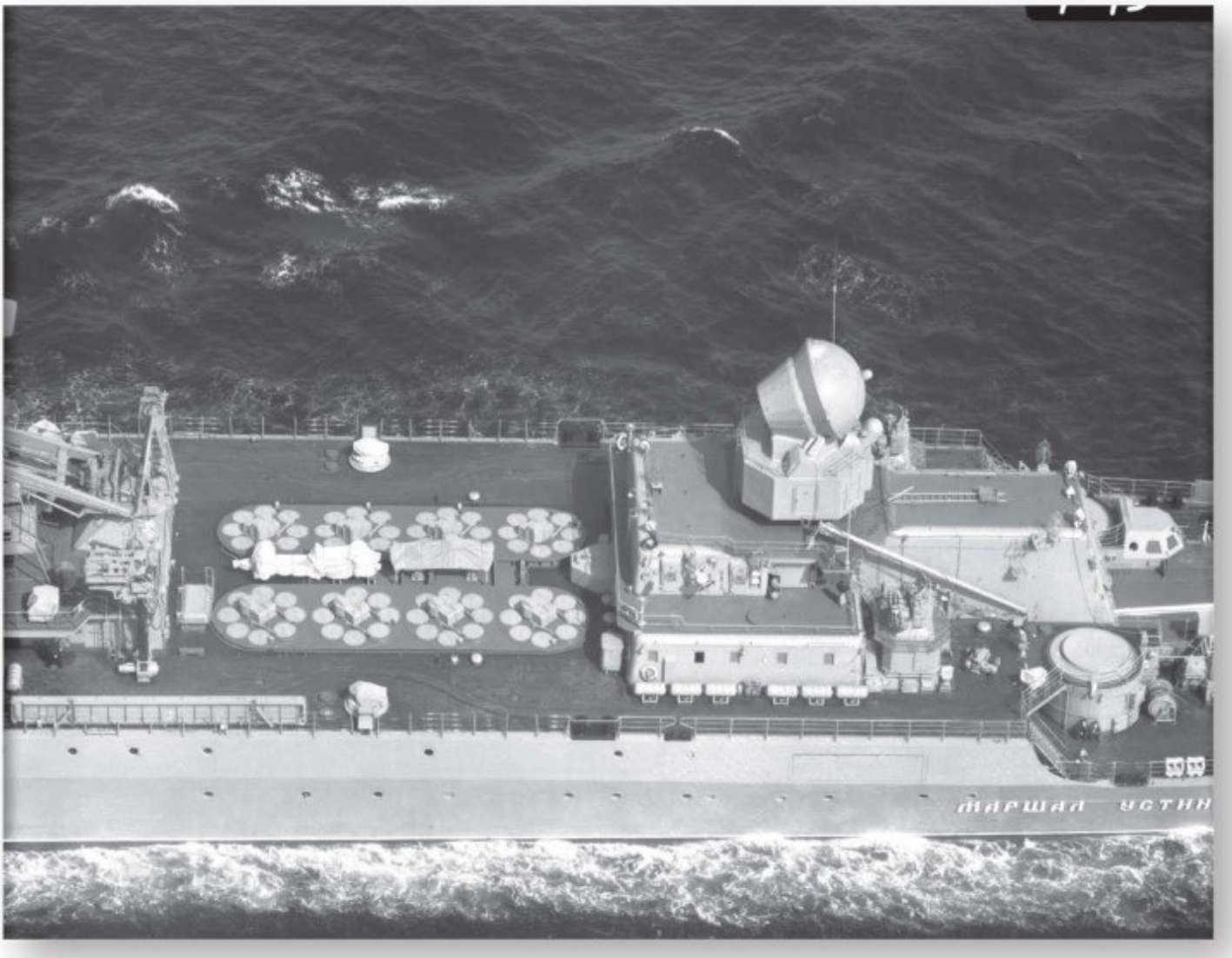
	2 twin launchers for Osa-M (40 missiles) 1 twin AK-130 (350 rounds) 6 sextuple AK-630 (1,200 rounds) 2 RBU 6000 rocket launchers 2 quintuple torpedo tubes 1 Ka-25 helicopter
Sensors	Radar: Voshkod/Kliver, Fregat-M, 3 Vaigach, Argon, Volna, 4P33, Lev, 3 Vympel Sonar: Platina EW: MRP14, MR404, Gorzuf
Propulsion	6 gas turbines, 2 shafts, 110,000hp, giving design speed of 32 knots Range: 6,800nm (12,594km) at 18 knots
Complement	416
Chief designers	A. K. Per'kov/V. M. Muhtikhin

F CONFRONTATION IN THE YOM KIPPUR WAR

This plate shows the Project 58 cruiser *Groznyy* closely shadowing the USS *Independence* in the eastern Mediterranean during the 1973 Yom Kippur War that pitted Israel against Arab states led by Egypt and Syria. The Soviet naval squadron in the eastern Mediterranean, supported from bases in Syria and anchorages off Egypt and Greece, deliberately placed vessels close to US naval forces in order to deter them from directly supporting the Israelis in the conflict. The greatest tension occurred towards the end of the war, when tentative ceasefires on land actually increased the confrontation between the two navies. Soviet shadowing warships undertook 'exercises' in which US warships were the target. On the US side, it was impossible to tell whether such 'exercises' might lead to actual live firing. In this plate, *Groznyy* is shown training her launchers for the anti-ship P35 missile at the USS *Independence*; her tracking radars are locked on to the carrier and flaps to the missile canisters have been opened. She is one step away from firing – and only a step away from an escalation into missile exchanges between the two sides.

Construction programme

These vessels were constructed at the 61 Kommuna shipyard at Nikolaev and construction started as the last of the preceding Project 1134B ships were launched. These vessels were clearly a lower priority for the Soviet Navy and the Black Sea yards, as their construction became increasingly prolonged, presumably as attention was given to the Kiev-class aircraft carriers being built nearby. As a result, the second and third ships took much longer to build than either the carriers or the highly complex Kirovs being built in the Baltic. Another indicator of the low priority these ships were given was the installation of obsolescent Gorzuf jammers on the mainmast. These had been superseded in the early 1980s by MR405, but the second and third ships still emerged with these older systems. *Slava* was completed with the earlier Fregat radar, the later ships were fitted with the Fregat M. *Chervona Ukraina* was fitted with the NATO code name 'Plate Steer' search radar in place of the Fregat radar. The fourth ship was 70 per cent complete when the Soviet Union collapsed and work stopped on the fifth and sixth ships on 4 October 1990.



The midships section of *Marshal Ustinov*, showing the vertical launch containers for the Fort air defence missile system. Note their arrangement in eight circular groups of eight. (USN: US federal government, public domain)

Slava-class ships			
Name	**Laid down**	**Launched**	**Completed**
Slava	5/11/76	27/7/79	30/12/82
Marshal Ustinov	5/10/78	25/2/82	15/9/86
Chervona Ukraina	31/7/79	28/8/83	25/12/89
Admiral Lobov	29/8/84	11/8/90	–
Oktyabrskskaya Revolutsiya	–	–	–
Admiral Gorshkov	–	–	–

OPERATIONAL SERVICE

Home ports during the Cold War

The geography of the Soviet Union's coastlines caused considerable difficulties in the basing and deployment of naval vessels. Her access to the open ocean was constrained by choke points guarded by NATO states or their allies: the Greenland–Iceland–United Kingdom gap, the Danish Skaggerak, the Turkish Bosphorus and the Straits of Japan. The Soviet Navy was split between four fleets: Northern, Baltic, Black Sea and Pacific. All Soviet cruisers were either constructed in the Baltic (Projects 58, 1134, 1134A, 1144) or Black Sea (Projects 1134B, 1164), but most would then transfer to other fleets on the completion of trials. Each cruiser was assigned to a particular fleet and probably spent most, if not all, of its career in that fleet. The Northern Fleet was the largest and most important Soviet fleet during the Cold War, and by the 1980s the Pacific Fleet was not too dissimilar in size. Even though most cruisers were built in the Baltic, few of the navy's cruisers were in fact based there, where light forces and submarines predominated. The Black Sea Fleet, whilst of increasing importance as the Soviets ventured into the Mediterranean in the late 1960s and 1970s, never had numbers of cruisers as high as the Northern Fleet or the Pacific Fleet. The table below sets out the basing of these missile cruisers from the late 1960s to 1991.

	Northern Fleet	Baltic Fleet	Black Sea Fleet	Pacific Fleet
Project 58	–	*Groznyy* (from 1982)	*Groznyy* (to 1980), *Admiral Golovko*	*Admiral Fokin, Varyag*
Project 1134	*Admiral Zozulya, Vitse Admiral Drozhd* (to early 1980s), *Sevastopol* (to mid-1970s)	*Vitse Admiral Drozhd* (early–late 1980s)	–	*Vladivostok, Sevastopol* (from 1980)
Project 1134A	*Kronstadt, Admiral Isakov, Admiral Makarov, Marshal Timoshenko, Admiral Yumashev*	*Admiral Nakhimov, Admiral Isachenkov*	–	*Marshal Voroshilov, Admiral Oktyabrskiy, Vasiliy Chapaev*
Project 1134B	–	–	*Nikolaev* (to 1983), *Ochakov, Kerch, Azov*	*Petropavlovsk, Tashkent, Tallinn, Nikolaev* (from 1983)
Project 1144	*Kirov, Kalinin*	–	–	*Frunze*
Project 1164	*Marshal Ustinov*	–	*Slava*	*Chervona Ukraina*

Note that the Project 58 vessels were never deployed in the Northern Fleet, suggesting a not wholly satisfactory design. It is possible that top-weight problems meant that the accretion of ice on these vessels, which would have been inevitable in the Northern Fleet in the winter, would have made them dangerously unstable. At different times, strategic priorities have ensured that different fleets have received more attention than others. The basing of the first four Project 1134Bs in the Black Sea seems to have been planned some time in advance (as their 'local' names suggest), and supported the build-up of Soviet capability in the Mediterranean in the 1970s. The transfer of the next three Project 1134Bs, along with *Sevastopol*, *Vasiliy Chapaev*, the new carrier *Minsk*, the large landing ship *Ivan Rogov* and a brace of Project 1135 guardships between 1978 and 1981, demonstrated the shifting of Soviet attention to the Far East after some years of neglect. This might have been to capitalize on the knock to US prestige in the Far East following the Vietnam War, but also reflected the growing focus given by the US Navy to the

Pacific and the growth of the Japanese navy. This attention continued through the 1980s as *Frunze* transferred to the Pacific soon after completion, as did the latest Kiev-class carrier, and a good proportion of the new Project 956 and 1155 destroyers. *Nikolaev* also transferred in 1983. The last of these deployments to augment a Pacific Fleet which was now approaching the size and capability of the Northern Fleet was the *Chervona Ukraina* in 1990.

Soviet naval deployments and operations in the Cold War

Until the mid-1950s, the major vessels of the Soviet Navy largely remained in their main local seas: the Northern Sea, the Baltic, the Black Sea and the Sea of Japan. After the death of Stalin, Soviet warships began to make port visits, mostly to NATO powers, and from the mid-1960s forces began to conduct exercises and even be deployed over longer periods outside the local sea areas. Three factors changed this situation and by the mid-1970s the Soviet Navy, with its new cruisers often in the forefront, was regularly deploying in most of the oceans of the world. The first factor was that Khrushchev and his successors began to take the Cold War to the Third World – helping friendly governments and rebel movements to challenge Western or West-supporting governments. In 1966 the Soviet Navy began publicly to enunciate its policy of involving itself in 'local wars' worldwide and using coercive diplomacy with warships to achieve its aims. Secondly, the new Soviet surface ships, including the missile cruisers, were much more able to deploy and sustain themselves out of area than their predecessors. Finally, partly in response to these developments, NATO forces stepped up their probing of the Soviet Union's 'home seas', particularly the Baltic. In January 1966 a US cruiser and destroyer crossed the Straits of Marmara into the Black Sea for 'training purposes'. Although the Black Sea was largely international waters, this unusual deployment was taken by Soviets to be 'suspicious muscle-flexing and intelligence operations'.

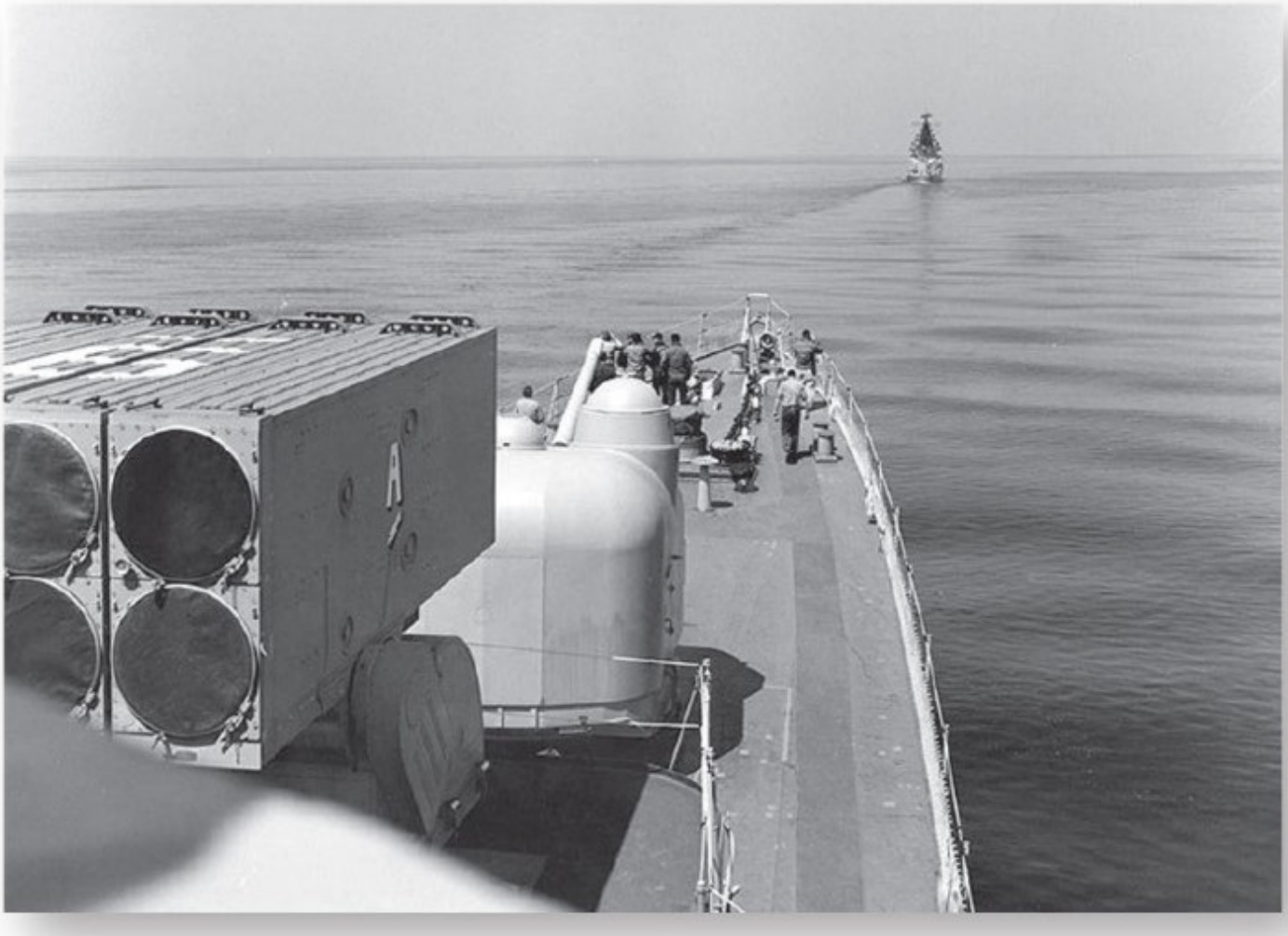
This image shows Soviet sailors on a Sverdlov-class cruiser in the Mediterranean in the 1960s shaking their fists at a US Neptune anti-submarine aircraft as it flies over a submerging Soviet submarine. Close shadowing by aircraft and ships was part of the cat-and-mouse games played by both sides in the Cold War. (Lyle J. Goldstein; Yuri M. Zhukov, Naval War College's Center for Naval Warfare Studies. Cushing Road, Newport, RI 02841: US Federal Government, public domain)

The first major arena for Soviet naval diplomacy was the Mediterranean. The Soviet Union's allies in Egypt and Syria allowed it to use anchorages and stores facilities at Alexandria and Tartus respectively from the mid-1960s. The Arab–Israeli Six Day War of 1967 was a watershed in Soviet naval deployments to the sea. Warships (rather than intelligence-gathering auxiliaries) shadowed NATO warships, and both sides were initially at pains to prevent escalation into war. However, when Israeli forces approached the Suez Canal, the Soviets airdropped supplies to the Egyptians and threatened military intervention; the United States urged the Israelis to stop their advance before the canal, and a truce was soon agreed between the two sides. No modern missile cruisers were deployed in the Mediterranean during this emergency – the Soviets seemed to wish to hold them in reserve – but following the conflict the size and nature of Soviet deployments increased considerably, and Project 58 and Project 1134 cruisers were soon seen in the Mediterranean Sea.

Three years later, during the Jordanian crisis, when that state's government fought a successful war against Palestinian refugees within its own borders and Syrian land forces invading from the north, the Fifth Eskadra, as the Soviet force in the Mediterranean was named, was directly used to counter manoeuvres by the US Sixth Fleet, which entered the Eastern Mediterranean to support Jordan if necessary. These forces were much more formidable than the single tailing ships used in 1967, and the deployments included one Project 1134 missile cruiser, in addition to numerous

missile destroyers and submarines. Tensions remained high after the Jordanian crisis, and following low-altitude, high-speed surveillance passes by US Navy carrier aircraft, a Project 58 missile cruiser and its destroyer escort responded by calling battle stations, locking targeting radars and running air defence missiles onto their launchers and training them. The US pilots did not respond, nor did the Soviet vessels take the next step – firing missiles – but the situation was one that could have easily escalated out of control. The 'locking-on' of a fire control radar or the loading of missiles onto their launchers could have political and diplomatic consequences as well as military ones. Despite this, the Soviet Navy had shown that it could complicate and partly check the operations of NATO forces and help deter such forces from actively involving themselves in a conflict.

In 1970 the Soviet Navy staged its largest ever naval exercise, *Okean 70*, stretching from the Atlantic to the Pacific. All four fleets were involved in elaborate pre-planned scenarios controlled from headquarters in Moscow, and involving elements of the Soviet Naval Air Force and Soviet Air Force. They generally took the form of mock pre-emptive attacks on enemy forces in these two oceans. Western analysts were impressed by the apparently sophisticated and effective co-ordination of these forces deployed across the globe, enabling simultaneous attacks on targets by surface, sub-surface and air units. Project 1134 ships, amongst others, were involved in these operations. However, the difficulties in such co-ordination from a central point in Moscow over a thousand miles away made it clear to Soviet leaders that some form of sea-borne command capability would be necessary. From these weaknesses came the concept behind the Project 1144 Kirov-class battlecruisers as command ships. Later, even more ambitious exercises would follow: *Okean 75* five years later was even bigger, involving over 220 warships in 14 exercise zones across the planet. Following this, similar but less ambitious exercises continued until the mid-1980s.By 1970 Soviet naval forces had also ventured into new maritime areas. Pacific Fleet forces had begun to be deployed to the Indian Ocean: India had become closer to the Soviet Union following its border war with China in 1962 and also due to the continued and strong US support for its regional adversary Pakistan. In addition, Aden and Southern Yemen, following British withdrawal in 1967, had suffered a civil war in which Soviet-backed forces finally triumphed, allowing the Port of Aden to be used by the Soviet Navy. During the 1971 Indo-Pakistan war, Soviet, US and British naval forces were all involved in a stand-off in the Indian Ocean, which included one Project 58 and one Project 1134 cruiser as a well as a number of destroyers and at least 11 submarines. The Soviet forces included a squadron which shadowed the British carrier group as it traversed the Indian Ocean after packing up the British presence in Singapore, and another which shadowed a US carrier group led by the USS *Enterprise* that entered the Indian Ocean to protect US interests in the region and to pressurize India to stop the conflict. Again, the Soviet naval presence demonstrated the ability of the USSR to support its allies in the region, and that US and British force deployments could be countered by forces which could limit the freedom of action of the Western naval squadrons.



Taken from the bridge wings of the USS *Koontz*, a missile destroyer, this shows a Project 1134 cruiser being tailed in the distance. (USN: US federal government, public domain)

The 1973 War of Yom Kippur is well known as an initially well-executed surprise attack by Arab land and air forces that over-reached itself and was beaten back just in time by the Israeli military. What is less well known is that the two superpowers confronted each other at sea in the Mediterranean, in a stand-off that could have rapidly descended into armed conflict. It was probably the closest the two sides had come to war since the Cuban Missile Crisis.

Egypt and Syria, since their defeat in 1967, had learnt much and had equipped themselves with much Soviet equipment supported by Soviet military advisers. In return the Soviet Navy had gained an anchorage off Alexandria and a small base in Tartus on the Syrian coast. The Soviets had not wanted another war between these Arab states and Israel, but when hostilities started they supported their allies and deployed the forces of the Fifth Eskadra to protect the convoying of military supplies from the USSR and deter the US from naval action in support of the Israelis. By late October, Soviet naval forces had been reinforced to such an extent that the vessels numbered over 100 .On 9 October, as the conflict began to turn against the Syrians on land, the Soviets assigned a Project 58 cruiser leading a small 'anti-carrier' group to the USS *Independence* of the Sixth Fleet as a warning against US interference, whilst Soviet supplies to Egypt were stepped up. The USS *Franklin D. Roosevelt* entered the eastern Mediterranean to cover the transfer of US military equipment to Israel and a Soviet shadowing force was put in place. Over the next few

weeks, Soviet naval forces covered the transfer of over 63,000 tons of supplies by sea to Syria and Egypt.

When the Israelis crossed the Suez Canal and were advancing on the Egyptian capital, Leonid Brezhnev, the Soviet General Secretary, threatened direct intervention by Soviet armed forces in the conflict to prevent the collapse of the Egyptian front and a possible attack on Cairo. It seemed likely that the Soviets could deploy up to two divisions of airborne troops to Egypt in two to three days, probably enough to halt the Israeli advance. The US responded by placing its armed forces at DEFCON (defence readiness condition) 3, the highest since the Cuban Missile Crisis. All US Sixth Fleet vessels were ordered to the eastern Mediterranean. Just before Brezhnev's announcement was made, a Project 58 cruiser and its escorts arrived as a new anti-carrier group to shadow the USS *Independence* and her escorts. This was clearly an attempt to dissuade US forces from moving the Sixth Fleet towards Egypt in an attempt to stop a Soviet air- and sea-lift of troops.

Even though a new ceasefire was called on land, tensions increased dramatically at sea. USS *Franklin D. Roosevelt* proceeded at great speed to the eastern Mediterranean, followed by the USS *John F. Kennedy*, which up until this point had been held near Gibraltar. In addition, a group around the amphibious assault ship *Iwo Jima* began sailing towards the east of the sea. The Soviets responded by attaching anti-carrier groups to these four forces, with a Project 58 ship assigned to both the *Independence* group and the *John F. Kennedy* group. A Project 1134 vessel was also part of the Soviet force but was not assigned to anti-carrier duties.

Marshal Ustinov makes a goodwill visit to the US naval base at Norfolk, Virginia in 1989. During the Gorbachev years, aggressive shadowing and major exercises in international waters dwindled and were replaced by visits such as these to build trust during *glasnost*. (PH1 Jeff Elliott, US Navy: US Federal Government, public domain)

The Soviet vessels shadowing the carrier groups, including the Project 58s, undertook a series of 'exercises' with the US warships as the simulated target. From the US perspective, it was impossible to tell the difference between what might be an exercise and an impending real attack. The Project 58s would load their P35 missiles into their launchers, load the rocket fuel and then train the launchers in the direction of US vessels. A slip or an itchy trigger finger could have

resulted in a rapidly escalating naval exchange, which might have been the first step towards general war. In the event, a second ceasefire on land helped lessen the tension: some US forces departed from the region and their Soviet shadows also disappeared. By 3 November, Soviet naval shadowing had returned to normal levels and Soviet naval forces were stood down from what was a near-war footing.

Through the 1970s and early 1980s Soviet warships were also increasingly present off the coast of Africa, in particular supporting Communist forces in wars in Angola, Mozambique and Ethiopia. In 1976, the Project 1134A cruiser *Admiral Makarov* bombarded MPLA positions off Angola during the civil war there, whilst in 1978 other Soviet vessels provided fire support to government forces fighting royalist rebels in Ethiopia. Soviet naval squadrons were also used to deter operations by South Africa in Angola and Mozambique.

Under Gorbachev, the thaw in East–West relations, coupled with a wish to focus on civilian economic development, lessened the numbers of these types of operations. Aside from goodwill visits to Western ports, Soviet vessels were increasingly confined to local waters as resources were diverted away from the armed forces. At the fall of the Soviet Union in December 1991, Soviet naval operations overseas were at their lowest ebb since the early 1950s.

RAMMING *GLASGOW*

HMS *Glasgow* and RFA *Olwen* were despatched in late May 1981 to collect intelligence on Soviet naval forces and their equipment whilst on local exercise off the Soviet northern coast. These vessels were clearly unwelcome, and during this deployment Soviet ships and aircraft locked their fire control radars onto the ships and their helicopters and trained their weaponry, all with the aim of intimidating and ultimately warning off the British vessels. Tensions were high on both sides and there were real and repeated risks of weapons being fired and casualties sustained. Whilst the Soviets were trialling some new off-board equipment, *Glasgow* approached to collect intelligence on this equipment and its capability. She was being shadowed by the Project 1134A cruiser *Admiral Isakov*, and it soon became clear that the captain of the *Admiral Isakov* had orders to force *Glasgow* away from the trial area. *Admiral Isakov* approached *Glasgow* on the starboard quarter, then turned to port, clearly on an oblique collision course with the British destroyer. The captain of *Glasgow* undertook evasive action, ensuring that his ship came as close as possible to matching the speed of *Admiral Isakov*, thus lessening the impact. When the blow came, it was glancing, and at a relative speed of only one knot. *Glasgow* received some damage to her forecastle fittings, but no one was injured. The image shows the point of impact, with *Admiral Isakov* ahead and across *Glasgow*'s starboard side. Note the relative sizes of these vessels – *Admiral Isakov* was over twice the size of *Glasgow*. This incident was one of a number during the Cold War as both sides tried to get the measure of the other, gaining or denying intelligence, and if necessary using aggressive behaviour, including manoeuvring with the aim of causing collision, to achieve these ends.

The fall of the Soviet Union and post-Cold War service

It has been seen that the refitting of older ships to improve their electronic systems and self-defence capability seemed sporadic and much less well organized than the initial construction of warships. Only a handful of Project 58, 1134 and 1134A ships received major refits during their service life, while some either emerged from refit fitted for, but not with, important equipment, or the refit took so long that some of the weaponry was obsolescent when the ships finally emerged. By the 1980s the repair and refit schedules for cruisers appeared to reflect a deteriorating ability of the shipyards to complete second order work: for example, *Kronstadt* was in refit for more than seven years, but when she emerged in 1989, her defects were such that she was scrapped barely two years later.

A rusting Project 58 cruiser, with her guns and search radars removed, is shown in tow to scrapping. (Allied navy: US Federal Government, public domain)

Following the end of the Cold War, the resources that had previously been put at the disposal of the navy rapidly disappeared: resources between 1991 and 2001 fell by approximately 80 per cent. The oldest ships that remained were rapidly retired, and a handful of the newer vessels stayed in commission as fleet flagships. The fourth Kirov-class ship was finally completed in 1998, and by 2015 only four other Soviet-era missile cruisers remained in commission. However, as part of an ambitious programme to rebuild the navy's capabilities, work started on refitting the long-out-of-service Kirov-class ship *Admiral Nakhimov* (ex *Kalinin*). This should be completed in 2018.

The *Admiral Ushakov* is shown at anchor in July 1992, three months after her formal renaming. Note that her gangplank still reads *Kirov* and she still flies the old Soviet naval flags on her bow and stern. (CWO2 Tony Alleyne, US Navy: US Federal government, public domain)

Maintenance and repair was a continuing problem. The siting of key parts of the surface warship building and repairing infrastructure in Ukraine, particularly the gas turbine manufacture and repair facilities, meant that this vital part of the maintenance complex was out of the control of Russia after the collapse of the Soviet Union. In recent years resources have increased and deployability appears to have improved. The tables below set out the fates of the missile cruisers described in this book.

Kynda class	
Groznyy	Stricken June 1991. Observed semi-submerged in Liepaya, Latvia early 1994
Admiral Golovko	Stricken by 1991 but re-activated for service in the Black Sea Fleet. Laid up again in 1995, but re-activated as Black Sea Fleet flagship. Stricken 2003
Admiral Fokin	Stricken December 1993
Varyag	Laid up from March 1989, decommissioned October 1990, stricken 1991

Kresta I class	
Admiral Zozulya	Baltic fleet flagship in Liepaya to 1994. Towed to St Petersburg, stricken September 1994, broken up Baltic 1995
Sevastopol	Retired late 1990. Scrapped in India June 1991
Vladivostok	Retired late 1990. Sold to Australian breakers January 1991

Vitse Admiral Drozd	Sank under tow for breaking up March 1992

Kresta II class	
Kronstadt	In refit 1982–89. Stricken June 1991
Admiral Isakov	Stricken June 1993
Admiral Nakhimov	Stricken January 1991
Admiral Makarov	Stricken July 1992, broken up in India
Khabarovsk	Stricken July 1992
Admiral Oktyabrskiy	Stricken June 1993
Admiral Isachenkov	Stricken July 1992, broken up in India
Marshal Timoshenko	In refit 1987–92. Stricken July 1992
Vasiliy Chapaev	Stricken June 1993
Admiral Yumashev	Stricken February 1993

Kara class	
Nikolaev	Under repair from 1986 following collision. Transferred to Ukraine 1992. Broken up in India 1994
Ochakov	In refit from 1990 to 1996. Static reserve from 1996. Decommissioned in 2011. Scuttled to block entrance to Lake Donuzlav as part of operations during the seizure of Crimea in March 2014
Kerch	In refit 2004–05. Used as a static training ship. Suffered a fire in November 2014 and decision made not to repair her. In reserve awaiting scrap
Azov	In refit 1997. Stricken 1998
Petropavlovsk	Laid up since 1996, although formally in service
Tashkent	Under repair from 1986 following collision. Transferred to Ukraine in 1992. Broken up in India 1994
Vladivostok	Stricken 1996

Kirov class	
Kirov	Minor nuclear accident in Mediterranean 1990. Renamed *Admiral Ushakov* March 1992. Formally in commission in Northern Fleet but largely immobile. Placed in static reserve 1997. Formally decommissioned 2004
Frunze	Renamed *Admiral Lazarev* March 1992. Decommissioned 1998
Kalinin	Renamed *Admiral Nakhimov* March 1992. Laid up from 1999 although formally still in commission. Started major refit June 2013, to complete 2018
Yuri Andropov	Renamed *Pyotr Velikiy* March 1992. Commissioned 1998. Flagship of the Russian Navy

Slava class	
Slava	In refit from 1990 to 2001. Renamed *Moskva* 1995. Black Sea flagship from 2001
Marshal Ustinov	Completed refit in St Petersburg May 1995
Chervona Ukraina	Renamed *Varyag* 1995
Admiral Lobov	Handed over to Ukraine for completion March 1993. Returned to Russia 1995. Back to Ukraine February 1999. Still incomplete

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Ukraina (ex-*Admiral Lobov*) is apparently 95 per cent complete but has now spent over 32 years under construction or awaiting completion. She was transferred to Ukraine in 1993, returned to Russia in July 1995, and renamed *Admiral Lobov*. In February 1999 she was handed back to Ukraine. Neither state has been able to complete her and she is very unlikely ever

to commission. (Herman1971: Creative Commons Attribution – Share Alike 3.0 Unported)

Moskva (ex-*Slava*) is shown at anchor in the Black Sea in 2009 with Russian flags on the bow, stern and foremast. She was active in support of the Crimean operations in March 2014. (PH1 Jeff Elliott, US Navy: US Federal Government, public domain)

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Edward Hampshire was awarded a doctorate in War Studies at King's College London in 2008. Since 2012 he has been a Senior Lecturer at the Royal Military Academy Sandhurst, and is currently on secondment to the Joint Services Command and Staff College, Shrivenham. Dr Hampshire wrote his doctoral thesis on British naval equipment of the 1960s, and he is currently researching British defence policy of the late 1970s and 1980s, in particular the 1981 Defence Review. His publications include *From East of Suez to the Eastern Atlantic, British Naval Policy 1964-70* and (co-authored) *British Intelligence: Secrets, Spies and Sources*. This is his second book for Osprey.

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Paul Wright has painted ships of all kinds for most of his career, specializing in steel and steam warships from the late 19th century to the present day. Paul's art has illustrated the works of Patrick O'Brian, Dudley Pope and C.S. Forester amongst others, and hangs in many corporate and private collections all over the world. A Member of the Royal Society of Marine Artists, Paul lives and works in Surrey.

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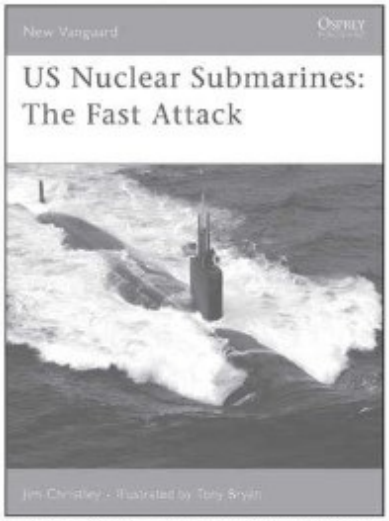

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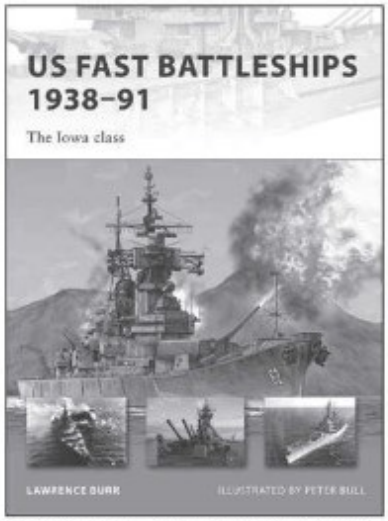

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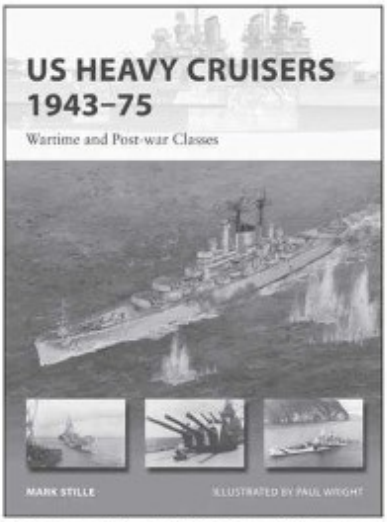

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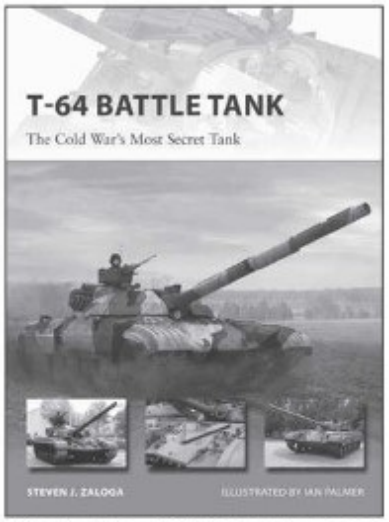

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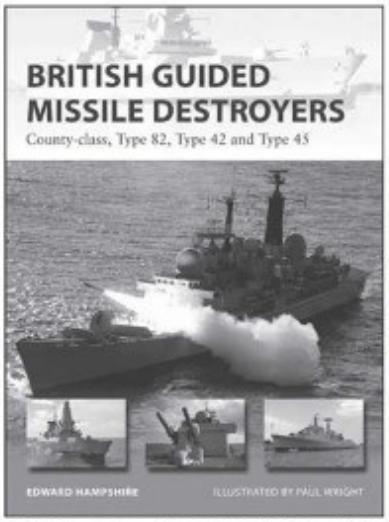

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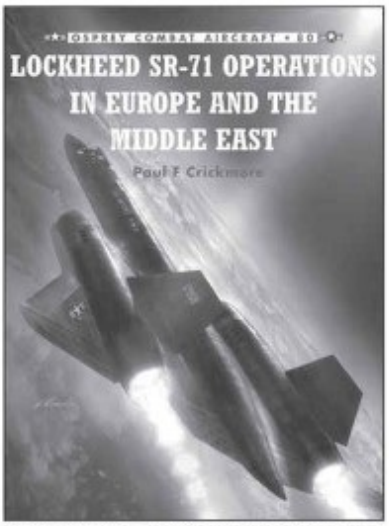

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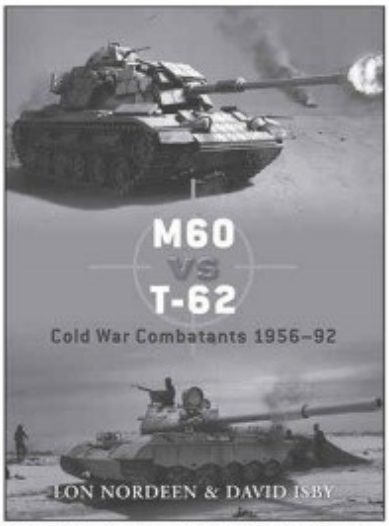

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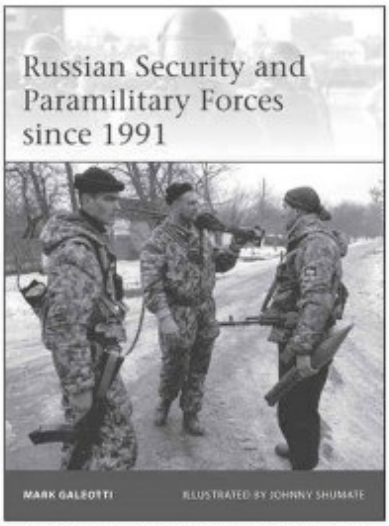

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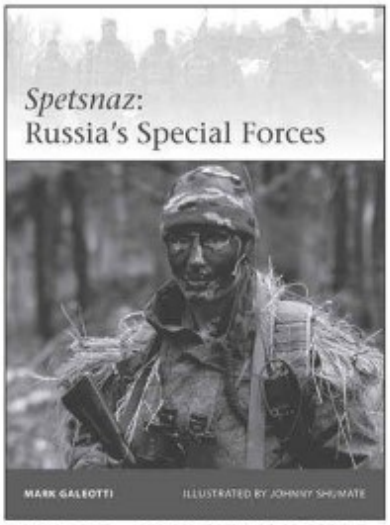

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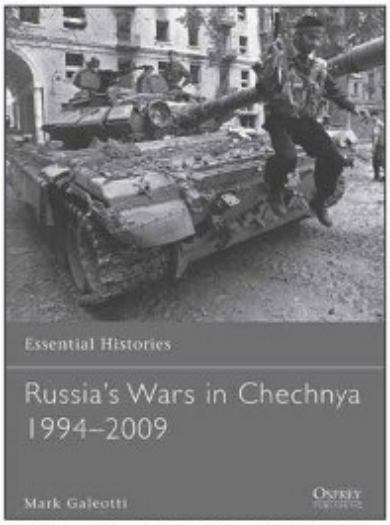

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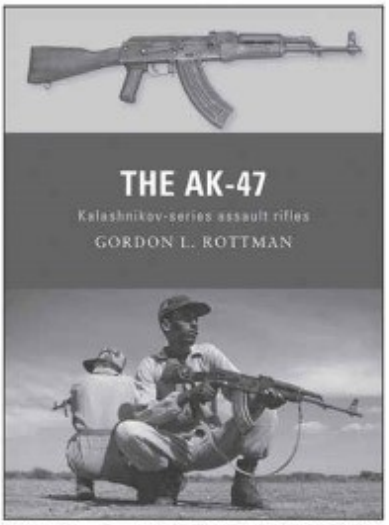

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Title page photo: *Kirov*, the first Project 1144 ship. She was three times the displacement of the preceding Project 1134B type, causing a considerable stir amongst Western analysts, who dubbed the vessel a 'battlecruiser'. (USN: US federal government, public domain)

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